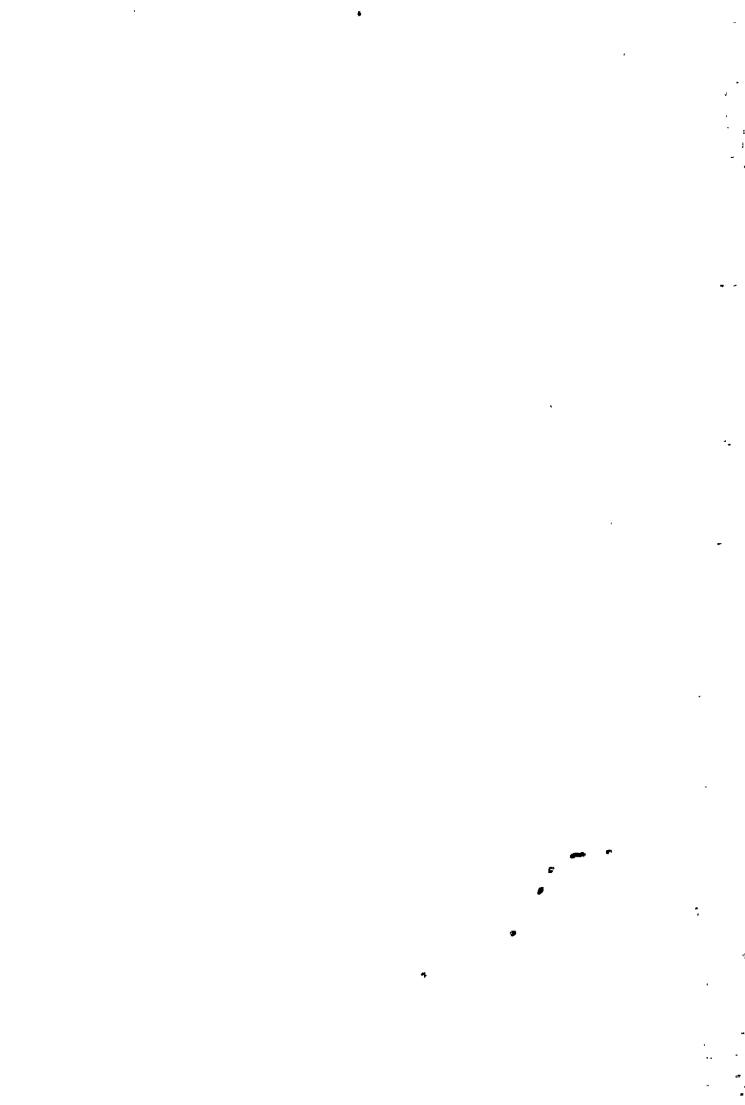


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THE ARCHAEOLOGY OF
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THE ARCHAEOLOGY OF SUSSEX

by
E. CECIL CURWEN
M.A., M.B., B.Ch., F.S.A.

WITH 32 PLATES AND 94 ILLUSTRATIONS
IN THE TEXT



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PREFACE TO THE FIRST EDITION

THE interest in archaeology which was aroused by the author's *Prehistoric Sussex* (1929 and 1930) has so stimulated research in the county that a large amount of fresh light has been shed on our Beginnings. A much fuller picture can therefore be drawn of those distant times—not only more connected but clearer in detail. The present work has been undertaken with a view to presenting such a picture, and if its matter is found to be fuller than that of the previous book, it is hoped that it will prove to be not less readable.

Two departures have been made from the scheme followed by the other volumes of the County Archaeologies that have already appeared. In the first place, the period covered stops short of the Saxon Conquest, because there is so much to say about the earlier periods in Sussex that it has been thought advisable to concentrate on them and not to attempt to cover too wide a field. In the second place, the Archaeological Gazetteer has been omitted altogether, because it is realized that it is a feature that appeals only to a relatively small company of specialists, whereas the main aim of the book is to cater for the general reader. Those who desire more information on the subjects discussed in the text will find full bibliography given in footnotes, including references to lists of classified material which have already been published elsewhere. It is felt that the omission of the Gazetteer will be more than counter-balanced by the inclusion of a wider range of illustrations.

The book has been written primarily to interest the general reader, while not neglecting the needs of the specialist. Just enough general archaeology has been included to make the local antiquities intelligible to those who have no special acquaintance with the subject, and nothing has been taken for granted in the matter of previous knowledge. The author has

had specially in mind those nearly two thousand members of local archaeological societies within the county whose zeal has in the past made possible much of the research which has formed the basis of this book.

E. C. C.

PREFACE TO THE SECOND EDITION

SINCE the appearance of the first edition of this work in 1937 several important excavations have been carried out in Sussex, both before and since the war, and the study of prehistoric archaeology throughout Europe has attained greater precision and complexity. The present edition has therefore been extensively revised in order to include the results of new discoveries, and also to bring the conclusions into line with the most recent knowledge and opinions.

The chapter on the development of pottery between 1000 B.C. and A.D. 50 has been omitted altogether (though most of its illustrations have been retained), because, thanks chiefly to the work of Professor C. F. C. Hawkes of Oxford, and also of Mr. G. P. Burstow, F.S.A., and Dr. A. E. Wilson, F.S.A., this subject has become too complex to appeal to the general reader, while students can refer to the original articles published by these workers.

It is vital for the future of archaeological research in the county that the interest of the general reader should be maintained in a subject which is becoming more and more the sphere of highly trained specialists. For this reason all avoidable technical terms have been deliberately omitted in so far as this has been possible without prejudicing the accuracy of the essential facts.

E. C. C.

ACKNOWLEDGEMENTS

IT gives the author real pleasure to acknowledge the many and varied kindnesses accorded him both by friends and by strangers during the preparation of the work. Unfortunately the bare mention of a name is but poor recognition of help that has always been ungrudgingly given and has often entailed much time and trouble.

First and foremost acknowledgement is due to the author's father, the late Dr. Eliot Curwen, F.S.A., who brought him up from childhood to love the Downs and to inquire into their ancient secrets, and who has helped him throughout by criticism and encouragement, and in many other ways.

Unfortunately space does not permit the inclusion of details of help given in each case, whether it entailed the reading and criticism of chapters in manuscript, the loan of objects for illustration, a flight across England to take an air-photograph, or other equally acceptable services. Among those to whom we desire especially to record our indebtedness are the following: The Council of the Sussex Archaeological Society, the Committee of the Worthing Archaeological Society, the Council of the Society of Antiquaries of London, the Trustees of the British Museum, the late Mr. Henry D. Roberts, M.B.E. (formerly Director of the Brighton Public Library, Museum and Art Gallery), the late Mr. H. S. Toms (Brighton Museum), the late Miss M. Frost, F.L.A., and Miss Ethel Gerard (Worthing Museum), the late Mr. W. Ruskin Butterfield and Mr. J. Manwaring Baines, F.S.A., F.Z.S. (Hastings Museum), Mr. Wilfrid Hynes, F.L.A. (Eastbourne Museum), the late Mr. E. J. F. Hearne (Littlehampton Museum), Mr. H. G. Massey (Hove Museum), Mr. G. Aitchison (formerly Editor of the *Brighton and Hove Herald*), the late Major G. W. G. Allen, F.S.A., the late Professor Henry Balfour, F.R.S., F.S.A., the late Mr. H. C. Beck, F.S.A., the late Rev. W. Budgen, F.S.A., Mr. G. P. Burstow, F.S.A., Mr. J. B. Calkin, M.A., Professor Grahame Clark, F.S.A.,

Mr. Trelawney Dayrell-Reed, Mr. W. F. Grimes, F.S.A., Mr. L. V. Grinsell, F.S.A., the late Dr. Clifton Harris, Professor Christopher Hawkes, F.S.A., Mr. G. A. Holleyman, F.S.A., Mr. D. W. Hudson, M.P.S., Mr. E. T. Leeds, F.S.A., Mr. Kenneth Loader, the late Major F. J. Maitland and Mr. A. F. Maitland, Mr. I. D. Margary, F.S.A., the late Mr. J. Reid Moir, Miss Nancy Newbigin, Dr. K. P. Oakley, F.S.A., F.G.S., Mrs. E. J. G. Piffard, Professor Stuart Piggott, F.S.A., Mrs. Stuart Piggott, F.S.A., Mr. J. H. Pull, the late Mr. Reginald A. Smith, the late Sir Arthur Smith-Woodward, F.R.S., F.Z.S., Dr. J. F. S. Stone, F.S.A., Dr. C. T. Trechmann, Mr. Barclay Wills, and Mr. Gurney Wilson.

The great majority of the drawings which adorn this work come from the pen of the late Mr. Robert Gurd, to whom we are specially indebted, not only for his technical skill, but also for the spirit in which that skill has been exercised.

We must not omit to record the part played by numerous landowners and tenants in allowing excavations to take place on their land. Not once has difficulty been encountered in this direction, and without their ready and willing co-operation the reconstruction here attempted would have been impossible.

Finally, the author would express his gratitude to Mr. T. D. (now Sir Thomas) Kendrick, F.S.A., the General Editor of the series of County Archaeologies (now discontinued), for all kinds of help given, and in particular for so cheerfully adding to his arduous labours at the British Museum the additional and often worrying tasks of answering numerous questions about tiresome, but important, details.

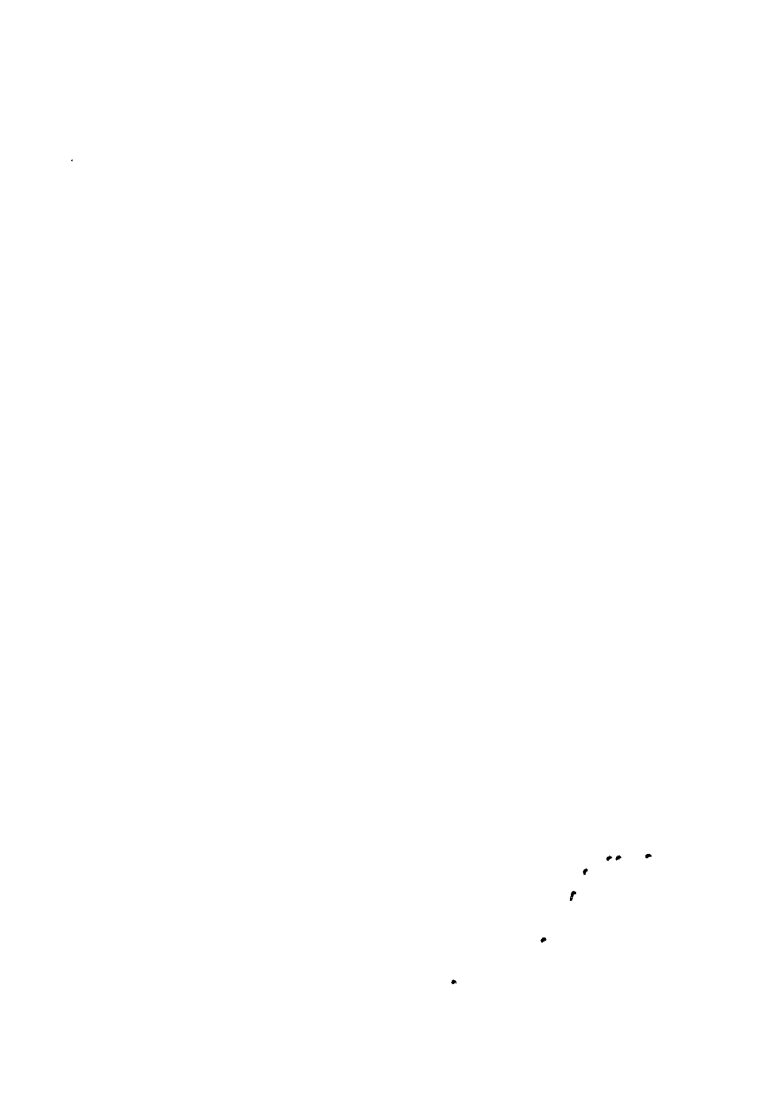
Plates II, VI, VII, X, XXI and XXIII are reproduced by permission of the Director General of the Ordnance Survey.

In the preparation of the second edition the author has received the same generous assistance wherever it has been sought, and he gratefully acknowledges in particular the help given by the following: Mr. E. M. M. Alexander, F.S.A., Mr. H. F. Brazenor (Brighton Museum), Mr. Horace Brightwell, Mr. G. P. Burstow, F.S.A., Professor V. Gordon Childe, D.Litt., D.Sc., Professor Grahame Clark, F.S.A., Dr. H. B. Ratcliffe Densham, M.B., B.S., Mr. D. P.

Graham (Alnwick Castle Museum), Mr. L. V. Grinsell, F.S.A., Professor C. F. C. Hawkes, F.S.A., Mr. E. W. Holden, Mr. G. A. Holleyman, F.S.A., Mr. I. D. Margary, F.S.A., Mr. N. E. S. Norris, F.S.A., Dr. K. P. Oakley, F.S.A., F.G.S., Professor Stuart Piggott, F.S.A., Mr. J. B. Radford, Mr. A. C. Roper, and Miss Grace Simpson.

ADDENDUM ON GOING TO PRESS

News of the exposure of the Piltdown hoax has come too late to prevent the inclusion of the story of the discoveries in this edition, as it was in the first edition. The previous conclusions have, however, been replaced by those of the scientists who have exposed the frauds, and in the light of the latter the story of the discoveries may not be without a certain interest.



ABBREVIATIONS

(Used in the footnote references and elsewhere)

PERIODICALS

- S.A.C. . . . *Sussex Archaeological Collections.*
 S.N.Q. . . . *Sussex Notes and Queries.*
 S.C.M. . . . *Sussex County Magazine.*
 B. and H.A. . . . *Brighton and Hove Archaeologist.*
 Arch. *Archaeologia.*
 P.S.A. *Proceedings of the Society of Antiquaries (London).*
 Ant. J. *Antiquaries' Journal.*
 Arch. J. *Archaeological Journal.*
 P.P.S.E.A. . . . *Proceedings of the Prehistoric Society of East Anglia.*
 P.P.S. *Proceedings of the Prehistoric Society.*
 J.R.A.I. *Journal of the Royal Anthropological Institute.*
 J.B.A.A. *Journal of the British Archaeological Association.*
 Q.J.G.S. *Quarterly Journal of the Geological Society.*

BOOKS

- Preh. Sx.* E. Cecil Curwen, *Prehistoric Sussex* (1929).
V.C.H. Sx. . . . *Victoria County History of Sussex.*
P.N. Sx. *Place-Names of Sussex* (English Place-Name Society,
 vols. vi, vii).
Arch. E.W. . . . T. D. Kendrick and C. F. C. Hawkes, *Archaeology in*
England and Wales, 1914-1931 (1932).
B.M. Stone Age . British Museum Guide to the Antiquities of the Stone
 Age.
B.M. Bronze Age . British Museum Guide to the Antiquities of the Bronze
 Age.
B.M. Iron Age . . British Museum Guide to the Antiquities of the Iron
 Age.
Evans, Stone . . Sir John Evans, *Ancient Stone Implements* (2nd edn.,
 1897).
Evans, Bronze . . Sir John Evans, *Ancient Bronze Implements* (1881).

MUSEUMS

B.M.	British Museum.
Bton M.	Brighton Museum.
Ebn M.	Eastbourne Museum (<i>destroyed</i>).
H.M.	Hastings Museum.
L.M.	Lewes Museum (Sussex Archaeological Society, Barbican House).
W.M.	Worthing Museum.

PRIVATE COLLECTIONS

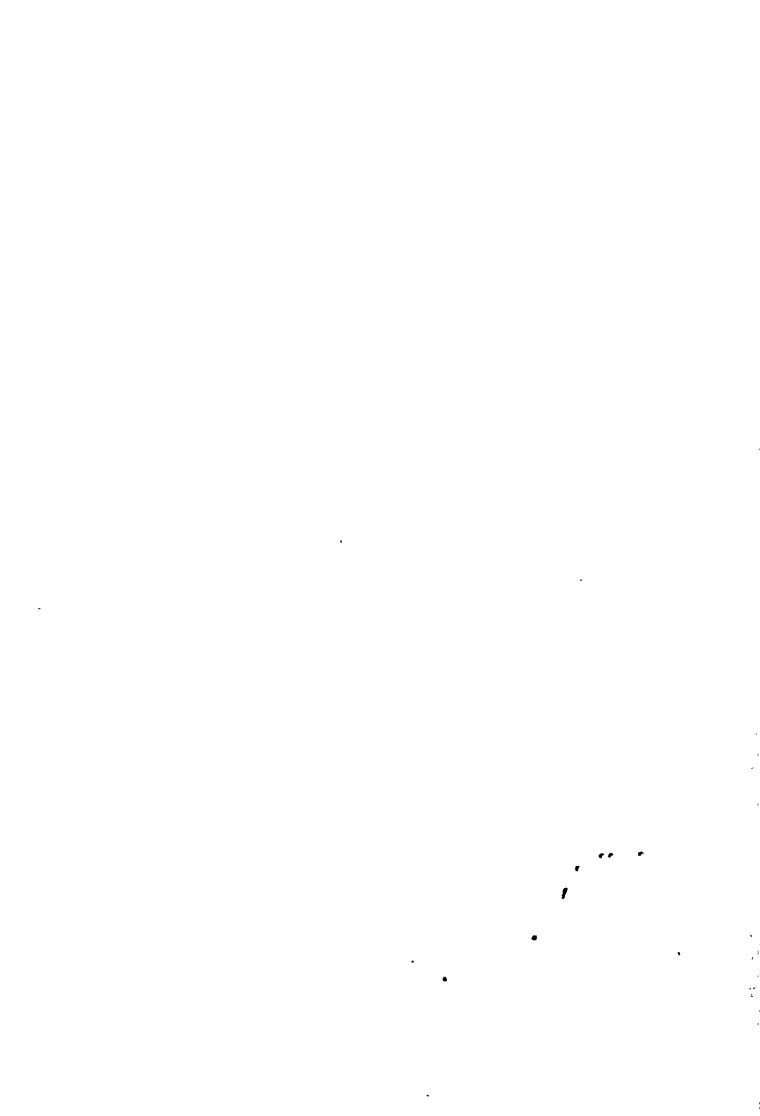
E.C.	The late Dr. Eliot Curwen, F.S.A., Hove.
E.J.G.P.	The late Mr. E. J. G. Piffard, Horsham. (<i>Both the above now in the Lewes Museum.</i>)
J.H.P.	Mr. J. H. Pull, Worthing (Worthing Museum).
R.G.R.	R. Garraway Rice Collections in the British Museum and Lewes Museum.
B.W.	Mr. Barclay Wills, Worthing.
G.W.	Mr. Gurney Wilson, Hove.

NATIONAL GRID

National Grid references are given for the principal sites, enabling them to be pin-pointed on the recent editions of the one-inch O.S. maps; e.g. the raised beach in Slindon Park, 41/951083.

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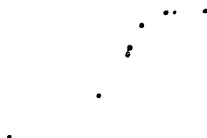


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* From photographs by the Author.

Chapter I

ON METHODS AND AIMS

What harm in getting knowledge even from . . . a pot?—RABELAIS

SUSSEX is one of the Home Counties, within an hour's reach of the Metropolis by road or rail. By reason, therefore, of its natural beauty and some eighty miles of excellent bathing beaches it has become a week-end playground for London, and even a dormitory for many of her city-workers. But this intimacy with the nerve-centre of England is merely the creation of modern engineering—railways, roads and cars. It has not always been thus, for in early times the habitable parts of the county lay in the south and were separated from all that lay to the north by a barrier of clay-land and forest, sufficient to deter all but the most dogged travellers. As lately as 1818 the roads were so bad that Bishop Buckner advised the new curate of Waldron to take up his residence before the winter set in, or he would not be able to move before the next spring.

In ancient times, therefore, Sussex was an area with well-marked natural boundaries, as we shall see when we study its geology—in some ways more easily accessible from the Continent than from the rest of England. As such it was a microcosm, and is peculiarly suitable as a subject of regional archaeological study. But no area can safely be separated entirely from its surroundings in this respect: it must always be regarded in relation to its neighbours, and though we may specialize in the study of a localized district we must always avoid the merely local or parochial spirit, and keep our horizons wide.

Prehistoric archaeology is an increasingly popular subject in Sussex; local archaeological societies are numerous and flourishing, and considerable interest is taken in excavations. It will be desirable, therefore, to preface the local study with a few general remarks designed to enable the reader with no special archaeological knowledge

to understand something of the principles underlying the study of prehistory. Indeed, he has a right to know something of the methods employed before he can be expected to accept the conclusions to which they lead.

Prehistoric archaeology provides a method of reconstructing history in the absence of contemporary written records. Thus we are attempting to push back the story of Sussex beyond the coming of the South Saxons, beyond the Romans, beyond even the 'Ancient Britons'. In the ordinary way the study of history is based on the records left by medieval chroniclers, classical authors, and Egyptian or Mesopotamian scribes. The business of the historian is to see how far these records are reliable and how far they are likely to be vitiated by personal bias, inaccuracy or deliberate invention on the part of the chroniclers.

When, however, we are dealing with peoples among whom the art of writing was not known, we have no contemporary written records to guide us, and we must therefore resort to quite different methods of reconstructing at least an outline of the happenings of those times and of their 'cultural background'.

This is the task of prehistoric archaeology—a rapidly growing modern science which makes a very strong appeal to the rising generation. That she is so much younger than her elder sister geology is due to the fact that the latter science is useful to the commercial world, while the charms of archaeology are reserved for those who find the study of man their supreme interest. No longer do we visualize the antiquary as Scott pictured him—an old man pre-occupied with conjectures and cobwebs, while collecting curios and treasures for his private amusement. The modern archaeologist is a scientist with a wide field of research awaiting him; he brings all the resources of modern science to bear on his problems, and the knowledge and the specimens that he collects are devoted, not to his private interest, but to the common fund.

In broad outline the methods of prehistoric research resemble those of a detective who is investigating a crime that no one has actually witnessed. The movements of the victim and the identity of his assailants can often be established by a careful study of fingerprints

or foot-prints, by the biological reactions of blood-stains, and by the microscopical examination of hair, cloth, mud, and so forth. No clue is too insignificant to be worth following, and experts in all relevant subjects are called in to advise.

So it is with the reconstruction of history in the absence of contemporary written records. The archaeologist examines minutely the actual scenes of the events he is trying to recall, and he collects all kinds of apparently insignificant clues, such as tiny scraps of broken pottery (often of such sort that a broken flower-pot would blush to be seen in their company), bits of corroded metal, stones, bones, ashes, snail-shells, and even samples of soil. In this uninspiring category we are likely to get most of the clues that we seek. Our friends will be contemptuous and not a little amused to see them; they cannot understand any one undertaking a laborious and perhaps costly excavation, and being content with less than the Golden Calf or at least a Grecian urn or two, as his reward. They still imagine that archaeology means treasure-hunting; for those who work in eastern lands this is not seldom incidentally the case, but their main object is always to gather data for the reconstruction of history. We gather our clues for their significance, not merely for their aesthetic value; the study of ancient art is but one branch of the wider study of archaeology.

Let us now apply these principles to the story of our own country. With the exception of occasional allusions by classical writers, our contemporary records do not go back beyond the beginning of the Christian era. And yet as much history was enacted during the two thousand years that preceded that era as has been enacted since, and it was those two thousand years that saw the embryonic development of our material civilization. The main outline of the picture of this period is now being gradually filled in as a result of co-ordinated prehistoric research. The part played by Sussex in this development it is the purpose of this book to show.

Sites of ancient occupation or burial may be well known, or they may be discovered accidentally or as a result of systematic exploration of a district. For the latter the practised eye is needed, together with intimate knowledge of the soil and of various local peculiarities.

Things so noticed must be mapped and recorded. Under suitable circumstances of soil filled-in ditches and pits may be discovered and their limits ascertained by sounding the ground with a rammer and noting the difference of pitch in the note obtained.¹ The use of this method made possible the surveys of the Neolithic settlements at Whitehawk and the Trundle, to be described later.

Air-photography is called in to aid whenever practicable, and photographs taken under suitable conditions of lighting, season and soil may be very helpful,² not only in revealing details previously unnoticed, but in co-ordinating, synthesizing or disentangling features observed on the ground. They may also facilitate the making of a plan of earthworks on rough or scrubby land where surveying is difficult or impossible. The value of the aerial camera lies in its power of obtaining a detached, comprehensive view of a considerable area of ground, so that every detail is seen in its true relation to the whole; the pedestrian observer, on the other hand, is often too near to what he sees to estimate its correct significance. In other words 'he cannot see the wood for the trees'.

The most striking triumph of air-photography, but one that has not yet obtained results in Sussex, lies in its ability, under suitable circumstances, especially of drought, to reveal the plan of an ancient site in standing corn—features which may be quite invisible on the bare soil, whether viewed from the ground or from the air. But when, for instance, in dry weather or on shallow top-soil a crop of standing corn covers the site of a lost prehistoric settlement, the pits and ditches of the latter may be filled with a greater depth of fertile soil than the rest of the field and consequently the corn growing over them will be better grown and more fully developed, being a darker green in its earlier stages, and a paler yellow when ripe. These changes of colour in localized patches are clearly visible from the air, though their significance may not be appreciated from the ground. In this way air-photography has been able, in other counties, to recover such spectacular features as the street-plan of a Roman town

¹ For an account of this method see *Antiquity*, iv (1930), pp. 30-1.

² O. G. S. Crawford, *Air-Photography for Archaeologists* (Ord. Survey Prof. Papers, N.S., No. 12, 1929).

in standing barley,¹ or the outline of a prehistoric wooden temple.²

All this is a preliminary to the principal method of prehistoric research, namely excavation. Now excavation does not consist simply in moving soil and grabbing specimens. It is almost as improper for an inexperienced person to dig into an ancient site without supervision as it would be for such a person to perform a surgical operation. Unless excavation is properly carried out it merely results in the destruction of evidence that might have been correctly interpreted by someone more skilled. Careful planning and forethought are necessary, both as to the choice of site and as to the particular method of recording results which is most suitable to the circumstances. It is not merely *what* is found that is so important as exactly *where* it is found. Therefore everything that is found has to bear a label indicating in some manner its precise position in relation to certain fixed points. Accurately surveyed plans and sections must be drawn, and these, together with full records of details and adequate illustrations of the objects found, must be published *without delay* for the benefit of other workers, for success depends upon co-ordination between all who are engaged in this study. Everyone who by excavating destroys the evidence contained in the ground undertakes the responsibility of restoring that evidence on paper as fully, but concisely, as the limits imposed by editors will allow. Such a report should aim at being, first and foremost, a record of fact, should concentrate on essentials, keep strictly to a logical order, and in all descriptions proceed from the general to the particular. The cream of the matter can be served up for the public later.³

Let us try to see why it is so important to record accurately the positions in which objects are found. It is self-evident that the lower levels of a mass of soil have been laid down before the upper levels. If the process of deposition of the soil has been slow, any objects of

¹ *Antiquity*, iii (1929), facing p. 183.

² *Ibid.*, i (1927), pp. 92-5.

³ For those requiring a text-book for field-work R. J. C. Atkinson's *Field Archaeology*, 2nd edn., London, 1953, is strongly recommended.

human workmanship found in the lower levels may be older than *some* of those found in the upper levels; but the latter may contain objects of various ages down to, but not later than, their period of deposition. This sounds complicated, but let us illustrate it by a simple comparison. Let us suppose that in the year 1900 a man lays down a book in a place where it will not be disturbed for many years, but before doing so slips in between the pages all the small change he has in his pocket at the time. Then let us suppose that in the year 1910 he does precisely the same thing, laying the second book on top of the first, and so on, every ten years. Finally, we examine the pile of books and by studying the dates on the coins try to arrive at the approximate date of the deposition of each book. In the lowest book we shall find coins dating, perhaps, anywhere between 1850 and 1900, but nothing later; in the next the range of dates may be extended to 1909 or 1910, though there will still be many of earlier date than 1900. And so we shall find throughout the series that the earliest possible date of the deposition of each book will depend upon that of the *latest* coin found in it. This illustration is crude, but it indicates the principle by which successive layers of soil can be dated—not so often by coins as by pottery. The principle is this: at any given level a deposit of soil cannot be earlier than the latest datable object found in it at that level. Naturally we cannot conclude in an isolated instance that a single datable object dates the deposit in which it is found; it may already have been very old when it got into that deposit. But in the case of superimposed layers with a sufficient number of datable objects in them a very fair estimate of the date of each layer can often be obtained by this method. A word of caution, however, is needed with regard to dating by means of coins, the thinness of which renders them peculiarly liable to slip down crevices into levels lower than those to which they properly belong. A good instance of this was the discovery of a farthing of Charles I in an Anglo-Saxon grave at Alfriston.¹

Hence we see the extreme importance of accurately labelling objects as to the exact position in which each was found. The

¹ S.A.C., lvi (1914), p. 35.

deposits of soil which one needs to date are usually the ramparts of fortified settlements, the soil that has silted into their ditches or into dwelling or other pits, or the accumulations of plough-soil resulting from processes of cultivation.

As a result of co-ordination in research it has been established that most of the common objects of everyday life have, as the centuries passed, undergone progressive modification, or gradual changes of style or fashion, or in some cases abrupt transition from one style to a completely new one. These changes can be studied in their proper order, because the earlier styles are normally found at lower levels than the later. The most useful objects for this study are pottery shards and to a less extent tools, weapons and ornaments of metal. At the present day we have an analogy in the possibility of dating a photograph by the dresses worn by the ladies in it, or by the year-model of a motor-car.

Thus by attention to *stratification* a system of *sequence-dating* can be established. The next step is to discover, if possible, where the ideas and improvements came from, that is, whether they were derived from neighbouring peoples in other lands. This is done by constructing maps on which a symbol is placed on the spot where each example was found of the particular type of pot or other object that is being studied. These *distribution-maps* must often embrace large parts of the Continent, and are a most fruitful means of tracing the movements of ancient peoples, their trade-routes, and the probable objects of their quests, whether amber, gold, copper or tin. Local styles may overlap one another, and so a chain of associated types of objects may be traced right across the Continent and linked up with those of the datable civilizations at the eastern end of the Mediterranean—Egypt, Mesopotamia and the Aegean. In this way the vagaries of fashions in our island three or four thousand years ago can be roughly dated by being brought into relation with the king-lists of Egypt or Sumer. The question is one of the greatest complexity, involving the construction of a complicated framework to hold the facts already ascertained.¹ This framework of provisional

¹ *Antiquity*, vi (1932), pp. 185-212, and chronological chart at end of volume.

dates is probably fairly correct in the main, though one may expect minor adjustments to be needed to accommodate fresh discoveries in the future. At best such dates are only very approximate, but it is upon lines such as these that the provisional dates employed here for prehistoric periods have been determined.¹

By building up the details into one picture we gradually see the outline appearing of the movements of trade and invasion, the probable motives that led migrations, the approximate dates of the introduction into this country of the knowledge of corn, bronze and iron, of the plough, the potters' wheel, the city and the safety-pin; while excavation of the dwelling-places and burials reveals a wealth of detail of the habits of life at various periods, the style of dwelling, the funerary ideas and customs, and sometimes the physical type of the people themselves. It is principally their names and their language that still elude us.

To this picture of the personal and communal life of prehistoric times we can add as a background some idea of the physical nature of the country, the variations of climate, and the flora and fauna. These are based on a study of the charcoal, snail-shells, animal-bones and occasionally the actual remains of plants or fruits. Charcoal from ancient hearths tells us the species of trees growing in the neighbourhood at the date determined by the associated pottery. Similarly, the bones indicate what animals had been domesticated and what wild species roamed the district.

The climate of these islands has not remained constant during the last few thousand years, but has undergone fluctuations as regards temperature and humidity. These fluctuations are not nearly as great as those which occurred during the various geological epochs of much earlier date, when the evidence of fossils indicates that Britain was at one time enjoying a tropical climate, and at another suffering the rigours of the Arctic. The minor changes to which we refer were due to the shifting northwards or southwards of the belt of cyclonic

¹ A recently introduced method of checking these dates by the estimation of radiocarbon in samples of ancient charcoal, &c., is described in *Antiquity*, xxiv (1950), p. 99; xxvi (1952), p. 35. The latter gives some recent results obtained.

DATE	SOUTHERN BRITAIN			NORTH MEDITERRANEAN	EGYPT	PALESTINE & MESOPOTAMIA
	CLIMATE	CULTURAL STAGES	PERIODS			
BC	BOREAL - COLD AND DRY (N.E. WINDS) BIRCH PINE HAZEL	HUNTING AND FOOD GATHERING	MESOLITHIC			
6000						
5000						
4000						
3000	SUB-BOREAL			EARLY MINOAN (CRETE) { CORN COPPER ETC	1 st DYNASTY PYRAMIDS	SUMERIANS
2000				TROY II BRONZE		
1000	SUB ATLANTIC	PASTORAL NOMAD AGRICULTURE	NEOLITHIC { CORN CATTLE POTTERY	HITTITES	HYKSOS TUTANKH-AMEN	ABRAHAM
0				IRON TROJAN WAR		MOSES
AD	WET BEECH HORNBEAM	AGRI-CULTURAL CELTIC TYPE	BRONZE AGE EARLY MIDDLE LATE	ROME FOUNDED		DAVID
1000				ATHENIAN EMPIRE ALEXANDER		NEBUCHAD-NEZZAR
2000	TEMPERATE AND DRY	AGRI-CULTURAL ENGLISH TYPE	IRON IRON AGE			JESUS CHRIST
AD			ROMAN			
1000			SAXON			
2000			NORMAN MEDIEVAL MODERN			
AD		INDUSTRIAL				

FIG. 1.—CHRONOLOGICAL CHART, SHOWING THE RELATION OF OUR PRE-HISTORIC PERIODS TO THE PHASES OF CLIMATE, TO CULTURAL STAGES, TO THE FIRST APPEARANCE OF THE ELEMENTS OF CIVILIZATION, AND TO SOME OF THE PRINCIPAL EVENTS IN MEDITERRANEAN LANDS

depressions which form so prominent a feature of our present weather reports.¹

Changes of temperature, humidity and the prevailing winds are reflected in the prevalence of certain varieties of trees at different periods. No striking evidence on this score has so far appeared in Sussex, and our knowledge regarding it is mainly derived from work done elsewhere. In the moorland districts of the north and west, and in the fens, results are obtained by a highly technical analysis of pollen contained in samples of peat. In a succession of samples taken at different levels in a peat-bog, the percentage of pollen of various kinds of trees, as alder, birch, pine, oak, and so forth, can be determined, and is found to vary fairly constantly according to the level from which it comes. These variations indicate changes of humidity, temperature and prevailing wind favouring the growth of different varieties of trees during succeeding epochs.² The results have been correlated with the various archaeological periods, so that it may even be possible, for instance, to date an isolated object fished up in the North Sea by the tree-pollen contained in a sample of peat adhering to it.

One of the greatest needs for a proper appreciation of our pre-history is a sense of perspective and proportion. It is to be hoped that the unthinking view that everything before Julius Caesar was a kind of homogeneous savagery is dying out—the view that confuses ‘Ancient Britons’, Druids, stone axes and Stonehenge in one comprehensive category. With a view to enabling the reader to acquire this sense of perspective the accompanying chronological chart has been drawn to scale, that he may see at a glance how relatively small our historic period is in comparison with our prehistoric, and that at the same time he may form some idea of what was happening simultaneously in some of the older centres of civilization (fig. 1). To this is added a column indicating the principal features of the climate in Britain throughout the period under review. It has not been possible to include the Palaeolithic, or older Stone Age, for the

¹ *Antiquity*, i (1927), pp. 412–18.

² *Ibid.*, vii (1933), pp. 36–48; H. Godwin, *New Phytol.*, xxxix, p. 370; *P.P.S.*, xii (1946), p. 1.

reason that, were such done in correct proportion, the chart would have to be printed on a sheet of paper some 25 feet in length! It is hoped, however, that it will prove useful for frequent reference while the later chapters are being read.

In conclusion, some will rightly ask, 'What is the good of it all?' Briefly, the answer is that the study of the past helps us to understand the present and to plan for the future, for it helps to give that breadth of vision which is too often lacking in these days of narrow specialization. Perhaps this may be illustrated by the analogy of the temperature chart of a patient in hospital: to-day's temperature, taken by itself, may be of limited value; its full significance is appreciated only when it is seen as part of the pattern of temperatures which have been recorded daily on the chart ever since the patient's admission. In the same way man's present and his foreseeable future are part of a pattern that has been shaping itself during the past few thousand years.

Chapter II

THE SETTING OF THE STAGE

Where wast thou when I laid the foundations of the earth . . .
When the morning stars sang together,
And all the sons of God shouted for joy ?

Job.

BEFORE proceeding to the actual drama of man's development in Sussex, we must first take a look at the stage upon which that drama was enacted, because geology and physical geography have such an important influence on history that without them the study of the latter may be meaningless.

The most prominent natural feature of the county is the range of chalk hills known as the South Downs, which extend for about fifty miles in an east-and-west direction from Beachy Head to the Hampshire border, beyond which they merge with the North Downs of Surrey to form the chalk plateau of Hampshire and Wiltshire. The southern slopes of these hills are gradual, and are broken up into numerous dry valleys; the northern slope, or escarpment, is very steep and abrupt. Consequently the range, which averages about five miles in width, attains its greatest altitude near its northern edge where it rises to a maximum of a little over 800 feet. A remarkable feature of these hills is the way in which the rivers, instead of rising in the hills and flowing down to the sea, rise in the plain to the north of them and then cut gaps clean through the Downs before reaching the sea. In this way the Downs are broken up into blocks by the rivers Cuckmere, Ouse, Adur and Arun. The only river that appears to behave normally in this respect is the little Lavant which rises in the Downs north of Chichester. An explanation of this phenomenon of the rivers will be given presently.

The surface of the chalk hills is remarkable for its gently flowing curves and the absence of abrupt changes of contour. It is this that gives them the restful quality that is so much more soothing to tired

nerves than a fussy sea or overwhelming mountains. In their eastern half, that is to say, east of the River Arun, this quality is enhanced by the absence of hedges, though with the passing of the South Down flocks and shepherds since the war the short, dry turf has largely given place to arable, and wire fences impede the rambler. Considerable areas are covered with a scrub of thorn, juniper, bramble and gorse in some parts. West of the Arun the Downs are much more wooded, large areas being covered with beech-trees, while most of the remainder is given up to scrub or hazel-thickets. Open downland here is exceptional, but the resultant scenic effect, as seen, for instance, at Arundel or Goodwood, is of the most satisfying kind. The beech is, however, a fairly recent arrival; in prehistoric times both the western and the eastern Downs were in all probability covered with scrub with a variable amount of grass.

Another peculiar feature of the Downs is the absence of water in the dry valleys which run among the hills. This is because the chalk is porous so that the rain sinks into the ground and emerges in springs at the foot of the Downs. As a result the surface is always dry for walking at any time of the year, but the absence of water is the chief cause of the scarcity of farms and villages on the chalk in recent times.

Standing on the crest of the Downs and looking to the north one sees a wide undulating plain stretching away some twenty miles to the North Downs, and broken by ridges of sand hills running east and west, parallel to the chalk. This, broadly speaking, is the Weald of Sussex, Surrey and Kent, though the term is somewhat differently understood by different people. Probably it is strictly applicable only to the central hillier part of the region, much of which is still forest, for the name is derived from an Anglo-Saxon word, akin to the German *Wald*, meaning 'forest', and as the Saxons settled very freely in the plain at the northern foot of the Downs they are not likely to have included that area in the 'forest' which we know they did not effectively colonize. Similarly, the Downs, that is, the 'hills', formed another area which they left largely uninhabited, whereas the areas in which their settlements occur most thickly have received no distinctive name. On the other hand, the geologists include the whole

of the plain north of the Downs under the term 'Weald', and from an archaeological point of view it is convenient to do likewise. The soils of the Weald consist of sands and clays in alternate bands stretching east and west, and these would in a state of nature be covered with forest and heath.

West of Brighton a flat coastal plain intervenes between the Downs and the sea. It fines out to a point at Hove, but attains its maximum width of about ten miles in the meridian of Chichester and Selsey. The soils are mostly gravels, loams and clays, the former probably being covered by heath and sparse woodland in prehistoric times, and the last by denser woodland.

Thus we see that Sussex consists of three main physical divisions—the Weald, the Downs and the coastal plain—all running parallel to one another in an east-to-west direction. The sea-coast cuts obliquely across all these divisions in its course which, in the main, runs from west-south-west to east-north-east. Thus, between Chichester Harbour and Brighton the shore is formed by the coastal plain; between Brighton and Eastbourne the white sea-cliffs proclaim the erosion of the chalk Downs, though here the greater resistance offered by the chalk results in the promontory of Beachy Head; north-eastwards of Eastbourne the coast consists of the Wealden clays and sand-hills.

A brief outline of the geological history of the district will help to explain the geography, and is in any case essential for an appreciation of the problems raised by man's first appearance in Sussex. For this purpose it will be necessary to consider a rather larger area than the county itself.

Most of the rocks—using the term in its geological sense—of which Sussex is composed have been laid down under water at an exceedingly remote period when the physical geography of the world was totally unlike that prevailing at present. At the beginning of the Cretaceous period the whole of what is now the south-east of England, and much else besides, was covered by a shallow fresh-water lake in the bottom of which the inflowing rivers deposited quantities of sand and some clay. In these shallow waters lived enormous reptiles such as the *Iguanodon* and the *Plesiosaurus*, whose

remains were found in Tilgate Forest by Gideon Mantell, more than a century ago. The ripple-marked sandstone which is so fashionable for our crazy pavements bears the imprint of the wavelets of these primeval waters, and occasionally these huge creatures left their footprints on it as they disported themselves among the pools; such footprints are greatly prized by collectors.¹ Deposits laid down at this early period, and known geologically as Hastings Sand, Ash-down Sand and Wadhurst Clay, constitute a large part of the north and east of the county between Horsham and Hastings.

During this time the land was gradually sinking, and the lake becoming deeper, till the bed of sand attained some hundreds of feet in thickness. Now the sediment forming at the bottom was no longer sand, but clay, and this attained a depth of something like 600 feet. This is the Wealden Clay which forms a belt of low-lying ground which surrounds Horsham on the north, west and south, and thence extends in a belt to Hailsham and Pevensey Levels.

The land was still sinking, and now the sea broke in, depositing, as it grew deeper and deeper, successive layers of sands and clays. Next above the Wealden Clay comes the Lower Greensand, from 100 to 350 feet thick. In Sussex this formation generally reveals itself in low ridges parallel to, and a little north of, the escarpment of the Downs. From the archaeological point of view we shall find these sand ridges important as they were specially favoured as camping grounds by the hunters of the Mesolithic period. Of the four divisions of the Lower Greensand only the Hythe beds need concern us here, as these provide a sandstone which was widely used for making querns, or mill-stones, from the Neolithic down to the end of the Roman period, or later.

Next comes a layer of clay, called Gault, something like 200-300 feet thick, and now to be found extending in a narrow belt which follows the foot of the chalk escarpment; it is, however, separated from the latter by another bed of sand—the Upper Greensand—some 50-70 feet thick, which outcrops at the actual foot of the chalk hills.

By this time the ever-deepening sea was becoming an ocean of

¹ G. Mantell, *The Geology of the South-east of England* (1833), pp. 260 ff.

immense depth as the subsidence of the land continued. In this ocean lived innumerable minute organisms—foraminifera—the shells of which were rich in calcium carbonate. As these organisms died, their bodies sank to the bottom, and in course of ages resulted in the deposition of a thick white ooze on the bed of the ocean, overlying the sands and clays which we have just described. This ooze is the origin of the chalk with which we are so familiar, and which originally attained a thickness of over 1,000 feet and extended from France and Belgium to north-eastern Ireland, and from Dorsetshire to the Yorkshire Wolds and Denmark.

The silica contained in the skeletons of sponges that grew on the bed of the ocean became in due course dissolved out by percolating water and re-deposited in the form of nodules of flint in horizontal seams at intervals of a few feet throughout the upper half of the stratum of chalk.¹ It was these nodules of flint that the Neolithic flint-miners sought as the raw material for their axes in ages long after.

At the remote period when the chalk was forming at the bottom of the ocean, this part of the globe was enjoying a tropical climate. Gradually, however, the floor of the ocean began to rise, and as the water grew shallower the formation of chalk ceased, giving place to deposits of clays, loams and pebbles known to geologists as the Reading and Woolwich Beds. These are the earliest of the Tertiary formations and, together with the next to be named, belong to the Eocene system. The Reading Beds were succeeded by a deep deposit of clay—the London Clay—and both these formations are found on the coastal plain, though they are very largely buried under later deposits. The London Clay was succeeded by the Bracklesham Sand, which is now found only in the neighbourhood of Selsey Bill. The fossils found in this layer include crocodiles, turtles, aquatic serpents (one of which was about 20 feet long), large shells, including cowries and nautilus, corals and the fruits of the Nipa-palm which resemble coconuts.²

¹ W. J. Sollas, *The Age of the Earth* (1908), pp. 133–65.

² Clement Reid, *The Geology of the Country around Bognor* (Geol. Survey Mem., 1897), p. 8.

While these Eocene beds were forming, the chalk was in places beginning to be thrust up above the water. This was the period when the present-day division of land and water was beginning to take shape as the crust of the earth was buckling and being thrown into folds by the contraction of its interior core. In this manner part of the bed of chalk, together with its underlying strata of sands and clays was gradually thrust up into an immense elongated dome over an area extending from what is now Hampshire on the west to the Pas de Calais in France on the east, and between a fold which was to form the Thames valley in the north and another which was to contain the English Channel on the south. If ever this 'dome' attained its full height before disintegration and denudation set in (which is doubtful), the highest part would have reached well-nigh 3,000 feet above the present sea-level, and would have been situated vertically above the district round Mayfield.

The buckling of hard strata involved in the process just described necessarily involves the bending and fissuring of rocks, with compression of the lowest of the series and stretching of the uppermost. The chalk, being highest, would bear the heaviest brunt of this strain, and if chalk is bent and stretched it is bound to fissure and disintegrate. Rain falling on the rising 'dome' will run off, mainly to north and south; gullies will be formed on its slopes, down which the disintegrating chalk from the summit will be rapidly carried off. Of the streams thus formed those flowing to the north joined with others to form the Thames, while those flowing to the south fell into the fold or valley that afterwards became the English Channel, emptying ultimately westwards into the Atlantic. The 'dome' itself formed an isthmus by which the land forming Britain was joined to that which we now know as the Continent.

It is the southern rivers which interest us most in Sussex, for the principal members of the series have survived to the present day, namely, from west to east, the Lavant, the Arun, the Adur, the Ouse and the Cuckmere. This series of parallel rivers no doubt extended to the area between Beachy Head and Boulogne prior to the separation of Britain from the Continent. During this Tertiary period of which we are speaking three processes were steadily going on: (1)

the elevation of the 'dome' across what is now the Weald; (2) the denudation of its upper and inner parts in the manner already described; and (3) the gradual elevation of the whole of the land mass that is now delimited by the 100-fathom line round the British Isles. Whether the whole of this mass ever appeared above the sea is uncertain; if it did so, then what is now the English Channel would have been a wide valley down which a river flowed to the Atlantic, having our Sussex rivers as its tributaries. Meanwhile the disintegration of the Wealden 'dome' was going on; the whole of the stratum of chalk capping it was washed away down the rivers, leaving only the lower slopes round its fringes which have survived to the present day as the North and South Downs. The Upper Greensand and the Gault Clay were next attacked and denuded in like manner, leaving only the up-tilted ends of their strata exposed under the broken-off escarpments of the chalk. In the same way the Lower Greensand and the Wealden Clay were denuded in their turn; the former, being resistant, forms ridges and hills where its strata were broken off; the Wealden Clay, on the other hand, was more completely washed away, so that where it outcrops now is always low ground. Finally, the Hastings Sand, lying at the heart or core of the 'dome', was compressed by the upheaval and consequently proved much less susceptible to denudation; it therefore forms the central mass of the Weald in which all our rivers now rise.

While this process of denudation was going on the rivers themselves had lowered their beds until they came to occupy something like their present positions among the stumps of denuded strata which form the Weald as we know it to-day. This provides the explanation of the curious way in which the rivers almost all flow through gaps in the chalk Downs. Such gaps are in reality but the seaward ends of valleys that furrowed the slopes of the 'dome' before it was denuded. The tiny River Lavant at Chichester is an exception, for at an early stage in its existence its head waters were stolen by the Rother, a tributary of its eastern neighbour, the Arun, so that its diminutive trickle is confined to a valley on the southern slopes of the Downs.

Passing on to the Pleistocene phase, which follows after the

Tertiary period, and omitting mention of the intervening Oligocene, Miocene and Pliocene periods which scarcely concern us, we come to what is most important for our study, namely, the era in which Man first appears in Sussex. Untold aeons have elapsed since the tropical days of the chalk ocean and since the first upheaval of the Wealden 'dome'. The climate of Britain—or of the spot where Britain now lies—has become gradually colder till it has reached a condition in which periods of Arctic cold alternate with milder intervals. By now the denudation of the Weald had reduced its contours to something resembling those of the present day, except that the two chalk ranges now known as the North and South Downs, which are but the springers of the arches of the vanished 'dome', together with the intervening plain of the Weald, still formed an isthmus connecting Britain with the Continent. As we have seen, both these chalk ranges were pierced by numerous river-gaps, including those portions which have since been destroyed by the sea.

Meanwhile the level of the land above the sea was rising and falling a few hundred feet in successive oscillations. At one time the land would be at least 100 feet higher than at present, during which time the river-gaps through the Downs were scoured out to a corresponding depth, as determined by well-borings. At another time the land sank and the sea rose about 130 feet above its present level, leaving traces of a beach of pebbles in parts of West Sussex—to be considered in greater detail in our next chapter. If the contours of the Weald were by this time similar to those of the present day, this would mean that the sea would enter the river-gaps and inundate large tracts of the low-lying Wealden Clay areas. If this happened near the eastern end of the Weald in such a way that the estuary so formed on one of the southern rivers united with that belonging to one of the northern streams, Britain would be severed from the Continent by a narrow sound through which the tides would rush with great force, rapidly widening the breach and scouring out the bottom *pari passu* with the subsequent elevation of the land. It must have been in some such way as this that the amputation of Britain was first accomplished by the sawing action of the tides, and the

subsequent widening of the Straits of Dover would only be a matter of time and the steady erosion of the soft rocks on either shore.

We have no means of knowing for certain the time when this severance first took place, except that it is likely to have occurred when the land was relatively low in the water, as, for instance, the time when the 130-foot 'raised beach' was thrown up by the sea near Slindon in West Sussex. Connexion with the Continent was re-established later, and the severance was not finally completed till about 6000 B.C.¹ But that the passage through the Straits remained difficult and dangerous for primitive ships for a very long time afterwards is inferred from the observation that as late as the Neolithic and Early Bronze periods the sea-borne trade between the Mediterranean and Scandinavia passed round the north of Scotland instead of through the Straits of Dover.²

The old sea-beach which is exposed near Slindon at a height of about 130 feet above the present sea-level is part of a shore-line that can be traced in quarries and gravel-pits at intervals between Arundel and Goodwood,³ and strips of it can be found at various altitudes between 70 and 135 feet, indicating various stages in the submergence or emergence of the land. For convenience these are collectively called the 100-foot raised beach,⁴ and as they assume special importance for us because of their relationship to the first appearance of man, they will be described in greater detail in the next chapter. Another raised beach is found at an average height of 15 feet above present sea-level.⁵ This is clearly seen in the lower part of the face of the cliff at Black Rock, Brighton, and can be easily examined by anyone going along the undercliff walk towards Rottingdean (plate I). The appearance is one of a bank of rounded beach-pebbles, more or less lightly cemented together, and cut in section so as to present a vertical face. The rest of the cliff above consists of a deposit

¹ P.P.S., ii (1936), p. 239.

² Cyril Fox, *The Personality of Britain* (1932), p. 23.

³ Rev. J. Fowler, *Quart. Journ. Geol. Soc.*, lxxxviii (1932), pp. 84-99.

⁴ Or the Tyrrhenian beach of Depéret's nomenclature (F. E. Zeuner, *Dating the Past* (1950), pp. 127-9).

⁵ The Late Monastirian of Depéret (*ibid.*).

of chalk rubble containing numerous angular nodules and chips of Downland flint, together with large blocks of sandstone and 'greywethers'. This is known as Coombe Rock, or Coombe deposit, and provides the principal evidence of the Ice Age in Sussex.

This Coombe Rock lies spread out in a thin sheet over a large part of the coastal plain of Sussex, resting, as a rule, upon the Eocene beds which have already been described. It is also found occupying the bottoms of most of the dry valleys or coombes in the chalk, especially towards their lower ends; hence its name. How did this come to be so? It has already been noticed that during the Tertiary period, which began with the formation of the Eocene beds immediately after the laying down of the chalk in the bottom of an ocean, the climate of this part of the globe gradually changed from one of a tropical to one of an arctic character. However this may have come about there is evidence that a great ice-sheet covered Scandinavia, the North Sea, and Britain at least as far south as the Thames. But even if Sussex was not actually glaciated, the climate at this time must have been of Arctic severity, and the ground under such conditions would remain permanently frozen to a great depth, to the destruction of most of the vegetation. Frost splits and disintegrates chalk more quickly than any other agency; it also renders it impervious to water while it is frozen, whereas ordinarily water percolates through it very easily, for which reason there are no streams in the dry valleys of the Downs. Under such conditions of frost the summer rains would not sink into the ground as now, but would cascade down the southern slopes and valleys, carrying with them great quantities of chalk disintegrated by the frost, together with nodules of flint, broken flint, boulders of sandstone ('greywethers'), bones of defunct animals, and occasionally the flint tools used by man.¹ All these go to make up the Coombe Rock as we have it spread out on the Coastal Plain and in the valley-bottoms, overwhelming and burying both the upper (100-foot) and the lower (15-foot) raised beaches. In this deposit have been found the bones of the mammoth, rhinoceros, hippopotamus, ox, horse, red deer and wild boar.

¹ E.g., see *R.P.S.*, xii (1946), p. 172.

The above is in brief the explanation put forward as to the origin of the Coombe Rock by Clement Reid in 1887, and is the one which is still officially accepted by geologists.¹ Thus the Coombe Rock is the monument which commemorates the Ice Age—or, rather, one or more of the four glacial periods or glaciations which are recognized by geologists, and which represent southward advances of the ice-sheet, alternating with warmer interglacial periods. It is in the nature of the case likely that each glaciation would produce a separate deposit of Coombe Rock, so that one cannot safely assume that all of this material is contemporaneous. It appears, for instance, that the scouring of the Slindon and Avisford valleys, near Arundel, must have taken place after the deposition of the Coombe Rock which covers the 100-foot raised beach.

The fact that both the 15-foot and the 100-foot raised beaches are buried under the Coombe Rock indicates that they each belong to a period anterior to at least one of these glaciations. On the evidence available at present it would seem probable that the 15-foot beach preceded the latest glaciation, and that the 100-foot beach belonged to the warm interval before the penultimate glaciation (see Table, p. 29).

At Slindon, however, in Marshall's gravel-pit the author noticed an unusual feature which came to light during 1935, namely, an 'interbedding' of the overlying Coombe Rock with the underlying marine sand.² This seems to indicate that when the Coombe Rock began to be deposited here, the sea was still washing over these sands which are now 120 feet above the present sea-level. At Black Rock, too, the Coombe Rock, which has guttered over the face of an older cliff, presents a stratified appearance which may best be explained by supposing that it was deposited in deep water, perhaps at the time when the 100-foot raised beach was being formed.

Traces of an earlier glaciation are found below the 15-foot raised

¹ Clement Reid in *Quart. Journ. Geol. Soc.*, xliii (1887), p. 364; H. J. Osborne White, *Geology of the Country near Brighton and Worthing* (1924), p. 81.

² K. P. Oakley and E. C. Curwen, *Proc. Geolog. Assoc.*, xlviii (1937), p. 317.

beach at Selsey, in the form of 'erratic' boulders of non-local rocks transported thither and deposited by shore-ice.¹

The failure to find traces of the 100-foot beach anywhere to the east of the River Arun has demanded an explanation. In 1938 Mr. E. C. Martin provided what seems to be the answer by pointing out that at the time of the 100-foot submergence a considerable range of chalk hills extended eastwards from Littlehampton, south of, and parallel to, the present Arundel-Brighton road—a range of which Highdown, north-west of Worthing, is the sole surviving fragment.² Such a range would at that time have formed an island which, by sheltering the coast to the north of it, would prevent the formation of a pebbly beach on the shore of the mainland, very much as the Isle of Wight does at the present day. Before or during the subsequent re-emergence of the land this chalk range was almost entirely washed away by the sea, leaving only Highdown as a promontory round the southern foot of which the 15-foot raised beach has been traced. If this is the correct interpretation of the facts, it follows that the 15-foot beach must represent the latest encroachment of the sea upon the land—later than the 100-foot beach, but earlier than the last glaciation.

With regard to the recurrent glaciations two questions will inevitably be asked: what caused them, and how far back do they go in terms of years? The current theory, which is strongly supported by the relevant facts, attributes the glaciations to the periodical 'perturbations' which the orbit of the earth suffers owing to the mutual attraction of the planets, for these perturbations are responsible for changes in the amount of radiation which the earth receives from the sun. On this basis the periodic minima of solar radiation are found to correspond in number and sequence with the peaks of glaciation deduced from the geological record, and, moreover, it has been found possible to make use of astronomical data to calculate the duration of each phase in terms of years. The results assign a duration of at least 600,000 years to the Pleistocene, during which four major

¹ Clement Reid, *Quart. Journ. Geol. Soc.*, xlviii (1892), pp. 344-64; *Geology of the Country near Bognor* (1897), pp. 9-11.

² E. C. Martin, *Proc. Geol. Assoc.*, xlix (1938), p. 198.

glaciations occurred, each one of which showed either two or three peaks of intensity. The accompanying diagram (fig. 2), based on data given by Professor Zeuner,¹ shows these set out graphically against a time-scale, in order to help us to see them in the right perspective. Three warmer intervals, or interglacial periods, separate the four main glaciations, the second interval being the longest, with a duration approaching 200,000 years. But the most startling fact brought out by this diagram is that, when we see these glaciations in their proper positions on the time-scale, we find that we

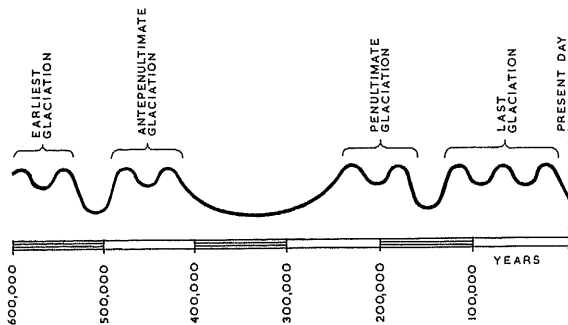


FIG. 2.—THE CHRONOLOGY OF THE GLACIAL PERIODS

After Zeuner

The peaks in the curve indicate cold phases

have only just emerged from the last of them, and that we may reasonably expect further glaciations to follow in the same series in the future. In fact, far from regarding 'the Ice Age' as an isolated phenomenon of the distant past, we must regard ourselves as placed in an interval between recurrent Ice Ages, both past and future.

With the passing of the Ice Ages we at last reach a period when it is possible to arrive at a rather more detailed chronology in terms of years. This is due to the researches of Baron de Geer, a Swedish geologist, who established a time-scale by observing and counting

¹ F. E. Zeuner, *Dating the Past* (1950), pp. 134-45.

the banded clays left by the annual winter halt in the retreat of the ice-sheet in Sweden. From his observations, and from the recently developed radiocarbon method of dating the remains of organic substances, it has been calculated that the last glaciation must have ended somewhere about 8000 B.C.¹

Since that time the climate has gradually improved till it reached its optimum in Britain by about 3000 B.C. After that, through minor fluctuations, it has become that which is the backbone of our small-talk to-day. Fluctuations of our coastline have also occurred; erosion has proceeded and has in the last few centuries swept away much of our seaboard—a fact which must be taken into account in dealing with later archaeological periods.

¹ *Antiquity*, ii (1928), pp. 308-15; F. E. Zeuner, *Dating the Past* (1950), p. 20.

Chapter III

PRIMEVAL HUNTERS

That skull had a tongue in it, and could sing once: how the knave jowls it to the ground! . . . Why does he suffer this rude knave now to knock him about the sconce with a dirty shovel?

Hamlet

IN the last chapter we described something of the preparation of the stage for the drama enacted by the human race—a preparation which occupied immeasurable acons of geological time, probably running into millions of years. It was pointed out that man probably does not appear—at any rate in Sussex—until the Pleistocene period, the final phase of the geological record—a phase that is insignificant in length when compared with the whole of that record, but which is nevertheless stupendous in proportion to the historic period of Europe and Western Asia. Looking back beyond the dawn of civilization we see an immense vista of many Stone Ages in succession stretching away back to, and perhaps in some places, beyond the beginning of the Pleistocene. These are broadly classified into three main groups—the *Palaeolithic* or Old Stone Age; the *Mesolithic* or Middle Stone Age, and the *Neolithic* or New Stone Age. The first of these groups forms the subject of the present chapter.

The Palaeolithic period corresponds in time with the Pleistocene, and was a period that saw many fluctuations in the relative level of land and sea, and still greater fluctuations in climate, more than one Ice Age alternating with warmer intervals. In Western Europe the Palaeolithic comprised a succession of several more or less distinct Stone Age cultures or 'industries', each probably of very great duration. These cultures are distinguished from one another mainly by differences in the technique of making flint implements which are the principal relics that they have left behind. It is always difficult to

find intelligible and descriptive names to apply to such cultures, consequently archaeologists have fallen back very largely on the habit of calling them after the names of places where they were first discovered or where they are typically represented. In this way the Palaeolithic cultures have for the most part been named after places in France or Belgium, each of which is commonly given an adjectival form resulting in an array of technical terms which may well be a source of dismay to the general reader. This must be avoided at all costs, and, perhaps fortunately for us from this point of view, only three of these cultures concern us in Sussex. The main divisions, from the oldest culture to the latest, are named after Chelles, St. Acheul, Le Moustier, Aurignac, Solutré and La Madeleine. Of these we are concerned only with the first, second and third, which commonly provide the adjectival forms Chellean, Acheulean and Mousterian. The first two of these belong to the lower (i.e. earlier) Palaeolithic, or Drift period, while the last forms the middle Palaeolithic. The last three names on the full list belong to the upper (i.e. later) Palaeolithic, or Cave period, but are only slightly, if at all, represented in Sussex.

One of the main problems of research in this period of overlap between geology and archaeology is to place the various archaeological cultures in their proper relation to such physical phenomena as the recurring glaciations or Ice Ages to which reference was made in the last chapter. In this matter complete unanimity among students has not yet been attained, and reference to different textbooks, especially to those which are more than a few years old, will yield very contradictory results. At the same time we must form some sort of provisional scheme which will co-ordinate the known facts, even if further discoveries necessitate modifications. In the accompanying chart the reader will find events recorded in chronological order from below upwards, so that the most recent is at the top and the most ancient at the bottom. The first three columns indicate respectively the succession of the most important climatic changes, that of the principal cultures or industries, and the corresponding evidence from Sussex. By way of comparison and correlation with neighbouring districts two more columns are added,

tabulating the principal evidence from the Thames Valley and from Norfolk and Suffolk ('East Anglia'), which form the main regions of Palaeolithic study in Britain.

We will now proceed to study the evidence from Sussex in greater detail, working back from the raised beaches to the earlier evidence.

(a) THE RAISED BEACHES

The story of Palaeolithic man in Sussex concerns itself very largely with the raised beaches which were briefly described in the last chapter. Here we must consider them in somewhat greater detail.

At a level which averages about 100 to 130 feet above the present sea-level the sea was beating on the shores of West Sussex and throwing up a beach of shingle and rounded pebbles along a line which is now several miles inland, between Arundel and Chichester. As already noted, this beach was subsequently buried under a deluge of chalk sludge, called Coombe Rock, which gushed down from the hills during one or more of the glacial periods. Hence this beach is only visible now where it is exposed in gravel-pits, but its appearance exactly resembles the modern beach, and below the shingle-bank lies 'lug-sand' precisely like the sand exposed at low tide on the present coast-line. The Rev. Joseph Fowler, F.G.S., has noted fourteen gravel-pits between Arundel and Goodwood, yielding evidence of sea-beaches varying in level between 105 and 135 feet above present sea-level (Ordnance Datum). He has further noted the occurrence of similar beaches in the same area in nine pits where the shingle lies between 70 and 90 feet above present sea-level.¹ These, though loosely associated with the first under the comprehensive term '100-foot raised beach', are clearly not contemporary, but must represent fluctuations in the relative levels of sea and land.

The best-known exposure of the upper of these two beaches is in a gravel-pit in the north-west corner of Slindon Park (41/951083). Here in 1912 the late Dr. Eliot Curwen picked up a flint implement that is assigned to the earlier part of the Acheulean culture (or St.

¹ *Quart. Journ. Geol. Soc.*, lxxxviii (1932), pp. 84-99.

PROVISIONAL CHART OF THE PALAEO-LITHIC PERIOD

<i>Climatic Phases</i>	<i>Industries</i>	<i>Evidence from Sussex</i>	<i>Evidence from the Thames Valley</i>	<i>Evidence from East Anglia</i>
Temperate	Recent Neolithic Mesolithic	Surface Soil and Alluvium		
Last Glaciation (cold)	Creswellian Aurignacian Mousterian (Levalloisian)	Scouring of Slindon and Avisford valleys? Coombe Rock	Story Loam or Trail	Brown Boulder Clay and Flood Plain Gravel
Last Interglacial (warm)	Mousterian (Levalloisian) Late Clactonian?	15-foot raised beach Pitdown Man?	Loams, &c. 50-foot terrace of Thames	Sands and Loams
Penultimate Glaciation (cold)	Levalloisian	Coombe Rock	Coombe Rock	Upper Chalky Boulder Clay and Cannon-shot Gravels
Penultimate Interglacial (warm)	Acheulean Clactonian	100-foot raised beach	100-foot terrace of Thames Swanscombe Man	Brick-earth of High Lodge, Ipswich and Hoxne
Antepenultimate Glaciation (cold)		Selsey erratics		Kimmeridge Boulder Clay
Antepenultimate Interglacial (warm)	Early Acheulean? Clactonian			Corton and Mundesley Sands?
Earliest Glaciation (cold)				Cromer Till and Norwich Brick-earth
(Warm)	Chellean? Clactonian?			Cromer Forest Bed

Acheul I).¹ Unfortunately it was not found *in situ* in the beach, but lying loose in the pit, so that it was not possible to say for certain whether it came from the beach itself or from the overlying Coombe Rock. The implement, which is roughly oval and is carefully flaked over both convex faces, is slightly water-worn and shows signs of

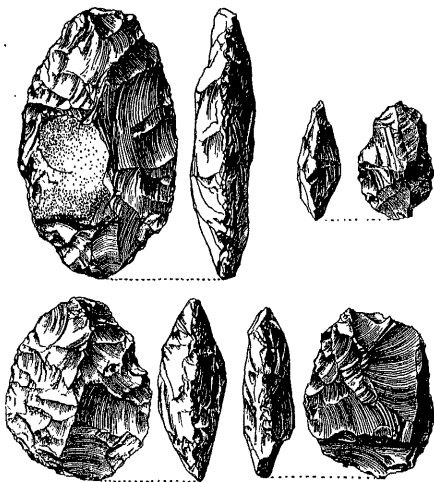


FIG. 3.—LATE ACHEULEAN IMPLEMENTS FROM THE SURFACE OF THE
135-FOOT RAISED BEACH, SLINDON PARK (B.M.) ($\frac{1}{8}$)

After J. B. Calkin

having been rolled among other stones by the sea or in a river. It is likely, therefore, to have come from the beach and to have been brought from elsewhere by the action of waves and currents and deposited on the then shore along with the other pebbles. A more thorough investigation of the pit was made by the Rev. Joseph

¹ *Ant. J.*, v (1925), p. 72; *B.M. Stone Age* (1926), pp. 65-6.

Fowler in 1929, when he found no less than ten implements which are assigned to the later part of the Acheulcan (or St. Acheul II), and in every case except one the edges of the tools were as sharp and unworn as when they left their makers' hands.¹ Unfortunately again they were not found *in situ* but loose in the pit, but their unworn

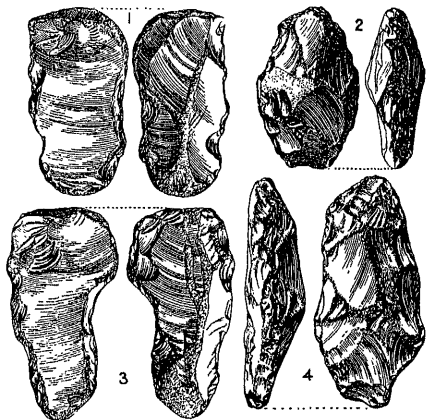


FIG. 4.—DERIVED IMPLEMENTS FROM THE RAISED BEACHES (B.M.) ($\frac{1}{3}$)

After J. B. Calkin

1 From 80-90-foot raised beach; 2-4, from 135-foot beach, Slindon Park

condition shows that they had not been beach-rolled and so must either have been left by their makers on the surface of the beach, or else have been swept down from the hills by the avalanche of Coombe Rock which buried the beach at a later date. It therefore became important to distinguish between these two possibilities.

Since then Mr. J. Bernard Calkin has had greater success in finding flints actually *in situ*.² In the upper two feet of the beach he found

¹ S.A.C., lxx (1929), pp. 197-200.

² P.P.S.E.A., vii (1935), pp. 333-47.

five implements ('hand-axes') characteristic of the Chellean and early Acheulean cultures, all much beach-worn, and therefore deposited there by the sea (fig. 4). Besides these he found at all levels flakes and cores of Clacton type—a flake industry that was probably contemporary with the Chellean, if not actually attributable to the same people; these also were very much beach-rolled. The inference from these discoveries is that the beach belongs to a date later than the early Acheulean. This was confirmed by Mr. Calkin's further discovery of an occupation site belonging to late Acheulean folk, spread out on the surface of the beach where a hunting and fishing community could live and work just out of reach of the high tides. This consisted of a 'floor' containing abundant examples of late Acheulean industry—22 hand-axes (and 5 others not found *in situ*), about 280 flakes or implements made from flakes, and nearly 20 cores. All these, like the tools found by Mr. Fowler, have clean, sharp edges, showing that they have not been carried there by the action of the sea, but were found as they were left by their makers (fig. 3). About a third of them, however, show some degree of battering, often on one face only, and this suggests to Mr. Calkin that after being left on the beach they may have suffered some slight disturbance by the sea at exceptionally high tides. The cores referred to above are blocks of flint from which flakes have been struck in the manufacture of implements. Only a few approached the form called a 'tortoise-core' which is a characteristic of the middle Palaeolithic. About a third of the flakes were of Levallois type—a flake industry sometimes associated with this phase of the Palaeolithic—and about one-eighth show a technical feature called a 'faceted butt'. Of the implements made from flakes twenty-five are scrapers—probably intended for scraping the fat from inside animal-skins and kindred uses; four are borers, of which two are for right-hand and two for left-hand rotation; five are pointed implements, and many others consist simply of sharp flakes that show signs of use on their sharp edges, as if they had been used as knives. The fact that two flakes were found which could be fitted together shows that they had not been much disturbed since they were struck off by a late Acheulean knapper. Traces of two fire-places or hearths

were also found, each made evident by small collections of burnt flints.¹

The 70-90-foot raised beach was also examined by Mr. Calkin in three gravel-pits—Aldingbourne Park, Pear Tree Knapp and East Hampnett. The bank of shingle is as much as 14 feet thick in the first-named pit, and in all three it contains many erratic pebbles, that is, pebbles of non-local stone, such as quartzite, coarse purple grit, granite and basalt, all of which have been washed up by the sea, though possibly in the first instance they may have been carried into the neighbourhood by moving ice during the previous glaciation.

Mixed with the shingle Mr. Calkin found thick flakes and cores of early Clacton type, all heavily beach-rolled, indicating their arrival by sea, as already described; but some in addition are deeply striated or scratched—a feature which tells us that they had been crushed with other flints by a great weight of ice—in other words, that they had been struck by the hand of man before the glacial period which preceded these raised beaches (see Table, p. 29). A heavily rolled hand-axe, probably early Acheulean, was also found in the East Hampnett pit, but not *in situ*, but the fact that it was beach-worn shows that it must have come from the beach, so that here again the evidence points to the beach being later than the early Acheulean. Against this, however, must be set the occurrence on the surface of the shingle of an unrolled implement suggestive of later Clacton type (contemporary with early Acheulean?).

We next have to consider the 15-foot raised beach which was mentioned in the last chapter as being well seen at Black Rock at the base of the first cliffs one passes on taking the Undercliff Walk from Brighton towards Rottingdean (plate I). The mass of pebbles is exposed in the vertical face of the cliff, being held together by a light natural cement. Resting immediately upon them is a bed of Coombe Rock, some 60 feet thick, which forms the upper part

¹ Mr. E. Pyddoke records the finding of an unabraded hand-axe of late Acheulean type in Penfold's pit at Slindon (41/974075). It was lying on the surface of the marine sand associated with the 100-foot beach and was covered by several feet of Coombe Rock (Sixth Annual Report of the Inst. of Archaeology, London, 1950, p. 30).

of the face of the cliff. Here the nature of this deposit is admirably seen—masses of chalk debris with large, unbroken flint nodules, angular broken flints, and large blocks of sandstone, all very largely stratified in alternating layers. Of this Mr. H. J. Osborne White, F.G.S., writes:

Contemplation of the admirable section near Black Rock has left the writer with the strong impression that the bulk of the Coombe Rock there came down the seaward slope of Red Hill in a pasty condition and guttered over the brow of the old cliff, to form the series of talus-bands so conspicuous in the modern cliff at that spot.¹

The old cliff to which he refers is one which was cut in the chalk by the sea which threw up the 15-foot raised beach, and at the foot of which that beach still lies. Though it has been completely buried by the Coombe Rock along most of this stretch, there is still one spot, at the extreme eastern end of the visible raised beach where the Coombe Rock has fallen away exposing the face of this old Pleistocene cliff before it merges with the modern chalk cliff towards the east.

A century ago Mantell could trace the 15-foot raised beach eastwards beyond Roedean, and it was visible westwards as far as West Street in Brighton, before the cliffs in Kemp Town were walled in. It has been picked up again at Copperas Gap south of Portslade Station,² between Old Shoreham bridge and North Lancing, at Goring,³ probably at Ferring, and finally at Selsey.⁴

In 1915 Mr. W. Deane of Brighton found a beach-rolled hand-axe of Acheulean type *in situ* in the 15-foot beach at Black Rock;⁵ this is the only implement known to have been found in this beach, and it does not help us very much in determining the age of this deposit relative to the higher raised beaches of West Sussex.

In this Coombe Rock and in the overlying Brickearth, which represents the last fine wash that came from the Downs towards

¹ *The Geology of the Country near Brighton and Worthing* (Geol. Survey Mem., 1924), p. 82.

² *Ibid.*, p. 76.

³ *Q.J.G.S.*, lxxxviii (1932), pp. 85-7.

⁴ *Proc. Geol. Assoc.*, xxvi (1915), p. 4. ⁵ *Q.J.G.S.*, xlviii (1892), p. 355.

the end of the glacial period, flint implements have occasionally been found. These are ovate hand-axes of Acheulean date, including some belonging to the latter part of that period as, for instance, an example found at Bognor, but derived from the Brickearth at Aldwick.¹ A similar specimen, now in the Brighton Museum, comes from the Coombe Rock at Portslade, and others have occasionally been found in various parts of the Coastal Plain. All these have clearly been derived from some locality on the Downs, whence they were swept down to the plain with the rest of the debris that goes to form the Coombe Rock.

(b) THE PILTDOWN DISCOVERIES

To some foreign archacologists, who have never heard of Sussex, Piltown has been a household name, within the compass of whose eight letters the cream of British archacology may be included. Piltown itself is a hamlet of no great pretensions situated about $7\frac{1}{2}$ miles north of Lewes. Much of the country hereabout presents the form of a flat plateau, into which the River Ouse and its tributaries have cut deep channels or gullies, thus masking to some extent its plateau character. The average height above sea-level is about 120 feet, and above the main stream of the Ouse about 80 feet. The late Mr. Charles Dawson, F.S.A., F.G.S., says of this plateau that it 'can in places be traced along a line drawn through Lindfield, Sheffield Park, Buckham Hill, Uckfield and Little Horsted and southwards, broadening out towards the Chalk Escarpment'.² Scattered on this plateau, which represents the bed of a former estuary of the River Ouse, is a layer of gravel, which near Piltown is from 3 to 5 feet thick, lying on the native Hastings Sand. It consists of a mixture of pebbles of Wealden iron-stone, derived locally, with angular brown flints, some of which are tabular, but all of which are more or less water-worn, but not so far as to resemble beach-pebbles. These flints have been ultimately derived from the chalk, but intermediately, no doubt, from other deposits. Mr. Dawson described this gravel as being clearly stratified, that is, divided into distinct layers or strata,

¹ S.A.C., lxx (1929), pp. 196-7.

² Q.J.G.S., lxix (1913), p. 119.

four in number.¹ Of these the gravel proper forms the third layer, and it was at the base of this that all the discoveries were made. The late Sir Arthur Smith Woodward, F.R.S., subsequently gave it as his opinion that the whole deposit is a shingle bank which may have accumulated in a comparatively short space of time, and that it presents definite evidence of flood-action.²

One day, about 1908, Mr. Charles Dawson was walking along the private approach road to Barkham Manor House, near Piltdown (51/440218), when he observed two labourers digging gravel in a shallow excavation by the side of the road. In the course of examining the gravel geologically he asked the men if they had found bones or other fossils there, and urged them to preserve anything they might find. On a subsequent visit to the pit he was handed a small piece of an unusually thick human skull-bone. It was not until 1911 that anything further came to light, when the labourers found the greater part of the human skull to which the foregoing fragment belonged. Mr. Dawson was able to retrieve from one of the spoil-heaps a larger fragment of the skull, including part of the left eyebrow ridge. Subsequently Mr. Dawson and Sir Arthur Smith Woodward employed labour themselves to make a systematic search among the spoil-heaps and gravel, and so found other portions of the skull. In a deeper depression in the undisturbed gravel the right half of a lower jaw was found—apparently in nearly the same spot where the first fragment of the skull came to light. A yard away, and at the same level, part of the back of the skull was discovered. An important observation is that all the fragments show little or no signs of rolling or other abrasion, that is to say, they have not been to any great extent knocked about by flowing water, and therefore may be regarded as contemporary with the deposition of the gravel in which they were found.

These excavations also brought to light teeth or fragments of teeth of an elephant, a mastodon, a hippopotamus, a rhinoceros and a beaver.³ A few feet away, in the surface soil behind the hedge

¹ *Op. cit.*, lxx (1914), pp. 82-3.

² *Op. cit.*, lxxiii (1917), p. 1

³ Dr. Kenneth Oakley has kindly supplied the following recent classification of these remains: (1) Contemporary Group: *Eoanthropus*, *Equus*, *Hippo-*

bordering the lane, part of a red-deer's antler was found, and also the tooth of a Pleistocene horse. A piece of a bone of a deer, found in one of the spoil-heaps, bears on its surface certain small cuts and scratches which were apparently made by man.

Careful watch was also kept upon the flints, nearly all of which have a thick patina stained by iron to an ochreous brown colour. A few which have quite a brilliant red tinge, especially on recently fractured surfaces, may have been heated in a fire. The forms of many of the flints resemble those of the so-called Eoliths, which by some are regarded as representing man's first unskilled efforts at chipping tools, and by others as the results of purely natural forces

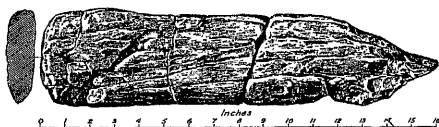


FIG. 5.—IMPLEMENT MADE FROM ELEPHANT'S THIGH-BONE, PILTDOWN ($\frac{1}{8}$)

After G. M. Woodward

(Nat. Hist. Museum, S. Kensington)

acting upon a mass of angular flints which are submitted to pressure and rolling. Besides these, a few flake implements of an early type were found in the gravel, and several others on the surface in the neighbourhood. The chipping appears chiefly on one face in each case, and all are slightly water-worn or rolled. They are thick and clumsy, and the flaking is broad and sparing. Their rolled condition seems to indicate that they may belong to an earlier date than that of the deposition of the gravel.

Work went on, every spadeful being laboriously sifted. In August 1913 a lower canine tooth was discovered, apparently belonging to the original sktill, and also some of the bones of the nose. In 1914 a remarkable piece of bone came to light, possibly shaped by the hand

potamus amphibius, *Elephas antiquus* (?), *Cervus elaphus*, another small deer, and *Castor fiber*. (2) Derived Group: *Mastodon cf. arvernensis*, *Rhinoceros cf. etruscus*, *Elephas cf. planifrons*.

of man. This object, which with the skull and other remains is to be seen at the Natural History Museum, South Kensington, is a straight piece of bone, about 16 inches long, 4 inches wide, and from $1\frac{1}{4}$ to 2 inches thick (fig. 5). The thicker end seems to have been sharpened to a point by such hacking blows as might be produced (Dr. Oakley thinks) by an even-edged chopper such as a metal axe or knife;¹ while the thinner end, which forms the butt, has been rounded by trimming of a similar character.

The object which we have just described proves to have come from the middle part of the thigh-bone of a very large elephant, larger than the mammoth. The original thigh-bone must have been a little over 4 feet in length.

In 1915 a further discovery was made near Sheffield Park at a point about two miles from the original gravel-digging. In a heap of stones that had been raked together and collected from the surface of a field Mr. Dawson found two pieces of a fossilized human skull and a molar tooth, of precisely the same peculiar type as the remains of the first individual from Piltown. Shortly afterwards the tooth of a rhinoceros also came to light in the same gravel.²

Having described the various objects found at Piltown and the circumstances of their discovery, we must now turn our attention to the peculiarities of the alleged human remains. These comprise the greater part of a brain-case, one-half of a lower jaw with three teeth and an isolated canine tooth.

The most prominent features of the cranium are its great thickness and its small capacity. The bone varies in thickness from 10 to 20 mm. (0.4 to 0.8 inches), which contrasts with the 5 or 6 mm. ($\frac{1}{4}$ inch) which is usual in the case of modern European skulls, while the thickness of one Mousterian skull from France was no more than 6 to 8 mm. The capacity of the brain-case, as calculated by Sir Arthur Smith Woodward, resembles that of some of the lowest skulls of existing Australians, being about two-thirds of that of modern Europeans. Apart from these peculiarities the details of the

¹ K. P. Oakley, *Man the Tool-maker* (Handbook of the British Museum (Nat. Hist.), 1949), pp. 69, 70.

² Q.J.G.S., lxxiii (1917), pp. 1-10.

bones are typically human, with the exception that the contours of the temples and of the back of the skull are more suggestive of the ape.¹

By making a negative plaster cast of the interior of the brain-case Sir Grafton Elliot Smith was able to recover the approximate shape of the brain, to the convolutions of which the bones of the skull are to some extent moulded. From this it is evident that the brain was smaller, and presented more primitive features than any other known human specimen. The arrangement of the convolutions was far less developed than is the case either in Mousterian or modern man. Two areas were, however, relatively well developed, each of which is especially characteristic of the human, as opposed to the simian, brain. One of these represents the speech-centre, which indicates that the individual possessed the power of 'spontaneous elaboration of speech and the ability to recall names'.²

The lower jaw is even more peculiar. The square jut of the human chin is completely lacking, being replaced by the receding slope of the ape's jaw.³ On the other hand, the molar teeth, though apparently worn in human fashion, are of the most primitive type, while the canine is believed to have erupted before the second and third molars, as in man, and not after them, as in the apes. The canine, or eye-tooth, itself is remarkable in resembling the milk-tooth of modern man rather than the corresponding permanent tooth.⁴

Sir Arthur Smith Woodward summed up these characters as follows:

While the skull, indeed, is essentially human, only approaching a lower grade in certain characters of the brain, in the attachment for the neck, the extent of the temporal muscles, and in the probably large size of the face, the mandible [lower jaw] appears to be almost precisely that of an ape, with nothing human except the molar teeth. . . . I therefore propose that the Piltdown specimen be regarded as the type of a new genus of the family Hominidae, to be named *Eoanthropus*. . . .⁵

The combination of characters in the reconstructed skull was so unexpected that it was suggested that the lower jaw and canine

¹ *Op. cit.*, lxix (1913), pp. 124-9.

² *Ibid.*, pp. 145-7.

³ *Ibid.*, pp. 129-39.

⁴ *Op. cit.*, lxx (1914), pp. 90-1.

⁵ *Op. cit.*, lxix (1913), pp. 132-5.

tooth might not belong to the human brain-case, but represent a fossil chimpanzee. The alternative view was that the Piltdown remains represented an aberrant type of man which diverged from the early stock of *Homo sapiens*, and that the ape-like characters of the lower jaw were evolved secondarily. The isolated molar tooth from the Sheffield Park site exactly matches the corresponding tooth in the original jaw.

Since the original discoveries and reports appeared, much controversy has gone on in many parts of the world as to the significance and age of these remains which have been acclaimed as representing one of the earliest known specimens of fossil man. When it came to assessing the approximate geological period to which the remains of *Eoanthropus* could be assigned, different anthropologists drew very different conclusions from the evidence before them. Recently, however, the problem has been to a large extent solved as a result of the application of chemical tests. It has long been known that fossil bones and teeth absorb the element fluorine in course of time; from this it follows that at any given site the amount of fluorine found in a series of bones will be roughly proportional to their age, or, in other words, the greater the fluorine content, the older the bone is.

This test was applied to all the bones and teeth from Piltdown and Sheffield Park in 1948, the fluorine estimation being carried out by Dr. C. R. Hoskins, of the Government Laboratory, in conjunction with Dr. Kenneth P. Oakley, of the Department of Geology at the British Museum of Natural History.¹ As a result the classification of the mammalian remains into two groups, an earlier and a later, which had already been provisionally accepted, was confirmed, and the tests showed conclusively that all the specimens referred to *Eoanthropus* are, together with the remains of beaver, actually the latest bones from the site. This evidence, together with geological considerations, pointed to the conclusion that Piltdown 'man' was much later than was previously thought, and that in all probability he lived during the last warm interglacial period.

¹ Dr. K. P. Oakley, *Advancement of Science*, vi (1950), p. 343; K. P. Oakley and C. R. Hoskins, *Nature*, clxv (March 11 1950), p. 379.

Even so, palaeontologists continued to be puzzled by the contradictions presented by the combination of a distinctively human type of cranium with a lower jaw and canine tooth of simian form, as well as by the incongruity of a simian type of jaw with teeth showing wear such as is only found on human teeth. The possibility that the jaw might have belonged to a fossil ape much earlier in date than the human cranium was negated by the fluorine tests already mentioned. In the opinion of Dr. J. S. Weiner of Oxford there remained only one possible solution to the problem, and that was that the lower jaw and canine tooth might have been cleverly faked, and 'planted' for the excavators to find.

With a view to testing this possibility the bones in question were submitted to fresh tests in the Government Laboratory and in the Department of Minerals at the British Museum (Natural History) and elsewhere, and the results have been published by Dr. Weiner, Dr. Oakley and Professor W. E. Le Gros Clark of Cambridge.¹ First of all it was found that the signs of wear on the lower teeth, including the loose canine, had been produced artificially, probably by filing or in some similar way. Then, by means of more delicate methods of analysis of fluorine content than it had been possible to employ in 1948, it was found that, whereas the cranial bones may well belong to the later palaeolithic, as previously claimed, the jaw, canine tooth and isolated molar are quite modern, and belonged to an ape. As a check on this conclusion the nitrogen content of the bones and teeth was also estimated, since this diminishes in proportion to age, and this yielded precisely the same conclusion. The dark coating of the bones and teeth was also analysed, and it was found that, whereas the cranial bones were, as was to be expected, heavily stained with iron oxide, the coating of the jaw contained little iron but small amounts of chromate, while that of the canine tooth was non-metallic and was a tough, flexible paint-like substance.

Since then still further experimental work on the Piltdown material has been carried out.² Many scientists have examined it in

¹ 'The Solution of the Piltdown Problem', *Bulletin of the British Museum (Natural History) Geology*, Vol. 2, No. 3 (1953).

² *The Times*, July 1, 1954.

different ways, and their work has led to even more startling conclusions, confirming those just described, but going on to show that the whole of the discoveries made at Piltdown were fraudulent. X-ray analysis of the human cranial bones revealed chemical changes which point to their having been artificially stained with sulphate of iron, the bones themselves being ancient, but not fossilized, as was previously thought. As the object of such staining can only have been to match the bones with the soil, it follows that these skull bones were deliberately 'planted' where they were found. The fossil animal remains must also have been 'planted', for most of them have been artificially stained. Tests for radioactivity have also yielded results, and have made it extremely probable that the tooth of a very early type of elephant came from Tunisia before being 'planted' at Piltdown. Similarly the tooth of a hippopotamus has been shown to have come from a limestone cave, possibly in Malta or Sicily.

It is not our part to apportion blame, but to recognize that someone, presumably wishing to create a stir in the scientific world by producing a spectacular 'missing link', succeeded in fooling the palaeontologists of the whole world for some forty years.¹

(c) OTHER PALAEOLITHIC DISCOVERIES

Flint implements attributable to the early and middle Palaeolithic (viz. Chellean, Acheulean and Mousterian) are peculiarly rare in Sussex, the recorded specimens numbering a few hundreds, as contrasted with the case of Kent, where a single site such as Swanscombe has yielded tens of thousands of such implements. Mr. L. V. Grinsell has performed good service in looking up all the known specimens and plotting their distribution on a map.² Unfortunately the exact find-spot of each example was not always noted or recorded by the finder; had this been done, such information might have enabled us to date the various river-gravels, with greater precision. All we can say from Mr. Grinsell's map is that the majority of the known specimens come from the valleys of the Sussex rivers,

¹ The author is greatly obliged to Dr. Oakley for much help in bringing the account of the Piltdown affair up to date as the proofs go to press.

² S.A.C., lxx (1929), pp. 172-82.

where they were no doubt found in gravel deposits—and these mostly, but not all, Acheulean. Of these the Arun valley is the richest, the late Mr. R. Garraway Rice having rescued and recorded a number of specimens from gravel-pits in the neighbourhood of Pulborough and Fittleworth.¹ Noteworthy among these are two sharp Acheulean ovates found in the plateau gravels on Fittleworth Common and near Hill Top, Midhurst. These sites are from 180 to 200 feet above sea-level and about 150 feet above the River Rother. It is possible, therefore, that these gravels may be equated with the

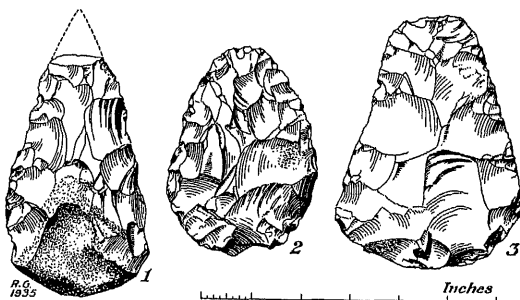


FIG. 6.—SURFACE IMPLEMENTS OF PALAEO-LITHIC FORM (L.M.) ($\frac{1}{8}$)

1, Exceat; 2, Litlington; 3, Wilmington or Willington Hill

raised beach at Slindon, and that they may represent part of the bed of the River Rother of that time.

A proportion of the remaining specimens on Mr. Grinsell's list were found on the surface of the Downs, mainly in the neighbourhood of Beachy Head (fig. 6).² Here one has to rely solely on the shape of the implements as a guide to their age, for their antiquity is not guaranteed by the seal of such geological features as Coombe Rock or raised beaches and gravels, and one cannot here eliminate the possibility of such implements being of later date, while similar

¹ *Proc. Soc. Ant.*, xx (1905), p. 197; xxiii (1911), p. 371.

² See also *P.P.S.* (July 1936), pp. 140-3. Another Acheulean specimen from Eastbourne is in the Birmingham City Museum.

in form. Though the specimens in question are accepted as Palaeolithic, and probably rightly so, one has to bear in mind the lesson to be learnt from the flint-mines in a later chapter, that the flint-knappers of the Neolithic and Early Bronze Ages certainly did manufacture a minority of implements of Palaeolithic form. In this connexion there arises one more point: we have seen how the Coombe Rock was swept from the Downs during the Mousterian culture-period, carrying with it derelict implements of Acheulean type. Any such tools, therefore, as remained on the surface of the Downs thereafter, must have been almost miraculously preserved from being swept away. If, however, an implement has an ochreous patina it is almost certain to be of Palaeolithic age, unless found in a ferruginous soil.

A number of Mousterian flints are cited by Mr. Grinsell, but these were mostly found on the Downs. For their types and other details the reader is referred to his original article.

Late Palaeolithic implements—Aurignacean, Solutrean and Magdalenian—are not certainly known from Sussex, form alone not being a safe guide. In age they are subsequent to the Coombe Rock and therefore must be sought on the present surface. The characteristic remains of this age are found in stratified deposits in caves, especially in France, but also in English caves such as Cheddar, Kent's Cavern (Torquay), and Cresswell Crags (Derbyshire). In districts where no caves exist one may assume that these folk had to be content with living in the open, and if it had not been for Neolithic man's propensity for imitating more ancient types of tools, we might expect to find the implements of this period on the surface of the Downs and elsewhere.

(d) SUMMARY

The details that we have been considering give but scant material for reconstructing a picture of the times. Even with the help of the much fuller results obtained in other districts the picture of the Drift period must remain very sketchy. Perhaps the discoveries at Swanscombe in Kent are the most helpful, for they reveal something of the type of human being then existing, foreshadowing *Homo sapiens*,

and much more advanced than Pekin Man. That this being was ancestral to any part of the present human race cannot be taken for granted, and is, indeed, very improbable. The Neanderthal race, which was responsible for the Mousterian culture, was also more advanced than Pekin Man, but is not generally regarded as ancestral to ourselves, owing to certain anatomical peculiarities, although their brain-capacity was fully equal to ours. Probably Neanderthalers were a sideline which died out while *Homo sapiens* was in course of refinement. Modern man (*Homo sapiens*) first appears, fully fledged, in the late Palaeolithic or cave period.

How man lived at this time it would be difficult to say without a good deal of guesswork. He may have shaped rude tools of flint and bone, and lived by hunting elephants and other game. As to whether he built himself a hut or lived in a hole in the ground or in a tree, we can only guess. Even the locality of his dwelling is not absolutely certain, but it is likely to have been on the dry gravelly banks of rivers or on the sea-shore. In fact, Acheulean man seems to have had a distinct preference for such situations, which probably means that he was interested in fishing; a good example of this is provided by the Late Acheulean sea-side settlement on the raised beach at Slindon—a kind of Palaeolithic forerunner of Bognor Regis. In fact, our knowledge of the life of these people can still be pretty accurately summed up in the words of the old Roman poet: 'In ancient times a man's weapons were his hands, his nails and his teeth, with stones and branches broken from the trees, and also fire, when this had been discovered.'¹ We can hardly improve upon this as a general picture.

We have already seen how the climate during the vast extent of the Palaeolithic period became arctic on at least four occasions, with intervals of warmer weather. This means that though man lived here during the intervals, he must have retreated southwards on the approach of the ice, and returned as it receded. The changes were, no doubt, so gradual that they would not be appreciable during one or even many lifetimes. The animals which man hunted included gigantic elephants of more than one kind at different epochs,

¹ Lucretius, v, 1283-5.

hippopotamus, rhinoceros, bears, and, perhaps later, horses and deer. There is no reason to think that any animal was domesticated, or that man yet possessed any of the other amenities of material civilization. The order of the different human cultures in relation to the various glaciations will be best appreciated by reference to the chronological table on p. 29, which, it must again be emphasized, is a purely tentative scheme and lays no claim to finality.

Frequent reference has been made to flint implements called hand-axes and ovates. How were they used, and for what purposes? Hand-axes, whether oval or pointed, are of such a shape that it is difficult to believe that they could ever have been mounted on wooden handles, as were the later and more delicately chipped axes of the Neolithic period. It is therefore assumed that they must have been held in the hand—the pointed ones for performing the hundred and one uses that a pointed tool will serve, and the oval ones as choppers. But if the latter kind had been intended to be used solely as a chopper, why was it shaped like a disc with a sharp cutting edge all round, which would tend to cut the hand that held it? It has therefore been suggested that another likely use for such an implement may have been to serve as a throwing-stone for bringing down game, the idea being that as it was thrown it was made to spin, so that some part of the cutting edge was bound to strike the objective with something of the effect of a circular saw. After all, if man was to be successful in killing large animals he must have had some weapon with which he could strike at a distance, and we have no evidence that he was acquainted with the uses of spears or arrows. Some such stone as this was used by the ancient Irish in semi-historical times, and was carried in the hollow boss of the shield. Various passages in Irish literature describe it as 'a flat stone', 'a stone that will cut', 'a stone that will spring over waves', and one that was thrown 'with a rotary motion'.¹ Clearly it was thrown just as some of us throw 'ducks and drakes'. The Acheulean ovates would answer to this description.

¹ O'Curry, *Manners and Customs of the Ancient Irish*, ii, pp. 263, 276-7, 280-2.



PLATE 1.—THE 15-FOOT RAISED BEACH AT BLACKROCK, BRIGHTON, OVERLAIN BY
STRATIFIED COOMBE ROCK



PLATE II.—AIR-PHOTOGRAPH OF WHITEHAWK NEOLITHIC CAMP ON THE BRIGHTON RACE-COURSE
(OBLIQUE VIEW, LOOKING EAST)

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Chapter IV

FOOD-GATHERERS

Through the leafy woods he wandered,
Saw the deer start from the thicket . . .
Saw the pigeon, the Omeme,
Building nests among the pine-trees . . .
Saw the wild-rice . . . saw the blueberry . . .
Saw the sturgeon, Nahma, leaping . . .
Saw the yellow perch, the Sahwa . . .
Saw the pike, the Maskenozha,
And the herring . . . and the craw-fish!
'Master of Life!' he cried, desponding,
'Must our lives depend on these things?'

LONGFELLOW, *Hiawatha*

WE have seen that Sussex retains no unmistakable traces of man in the Upper Palaeolithic or Cave Period, partly because there were no habitable caves, and partly because it is difficult to distinguish his worked flints from those of later times, seeing that they must be found on the surface if they are to be found anywhere.

With the passing of the Ice Ages we leave the Palaeolithic period and enter the Mesolithic, so called because it may be regarded as the Middle Stone Age, intervening between the Old and the New. The period was one of great natural changes,¹ both geographical and biological, and these must have been gradual and protracted. As the ice-sheet retreated northwards, so the forests advanced, first cold-loving, and later warm-loving trees, into the regions previously occupied by tundra and steppe-vegetation. According to Baron de Geer's chronology, the period between the beginning of these changes and the diffusion of Neolithic arts in Northern Europe—that is, the period with which we are concerned in the present chapter—occupied something like 4,000 years.

¹ For a description of these natural changes see Professor J. G. D. Clark, *The Mesolithic Settlement of Northern Europe*, 1936.

Man's reaction to these changes appears to have consisted mainly in improvement in his hunting equipment and in general migration in search of game. As yet he knew nothing of agriculture or the domestication of animals, so that if big game became scarce he must content himself with such smaller fry as deer, birds and fish for his livelihood. One of the most remarkable features of this period is the way in which its characteristic minute flint implements are found in a world-wide distribution, as Professor Grahame Clark says, 'from Scotland to Australia, and from Poland to the Cape'.¹ Recent research has distinguished seven main Mesolithic cultures in Europe, and many local variants, each named after characteristic sites of discovery in France, Scandinavia and elsewhere. The Mesolithic as a whole had been dealt with very comprehensively by Professor Clark in the two works cited, and as a chapter of his earlier book is devoted to that period in Sussex,² it will be sufficient here to give a general outline of the county material, based on his work.

Of the seven main Mesolithic industries we have to deal with only one in Sussex, and this is named the *Tardenoisian*, a cumbersome and inelegant adjective formed from Fère-en-Tardenois, a place in France where the industry was first recognized. This culture reached us from Belgium and its remains consist in the discovery of certain characteristic flints found in equally characteristic localities (fig. 7).

The flints comprise 'microliths', *tranchet* axes, and *petit tranchet* arrow-heads—terms which at once call for definition.

(1) Microliths (Greek, 'small stones') are very small, narrow flakes which are blunted on one or more edges by steep secondary chipping, but devoid of any secondary work on either face (fig. 8). As a rule, they range from about $\frac{1}{2}$ inch to $1\frac{1}{2}$ or 2 inches in length, and may be as little as $\frac{1}{16}$ inch wide, only distinguished from fortuitous splinters by the most delicate secondary chipping. They are often called 'pygmy implements', but this is a term which is not encouraged as it is apt to engender the view that their makers were a race of pygmies, which was not the case. Microliths have been exhaustively

¹ J. G. D. Clark, *The Mesolithic Age in Britain* (1932), p. 7.

² *Ibid.*, pp. 70-91; see also *P.P.S.*, (1939), p. 91.

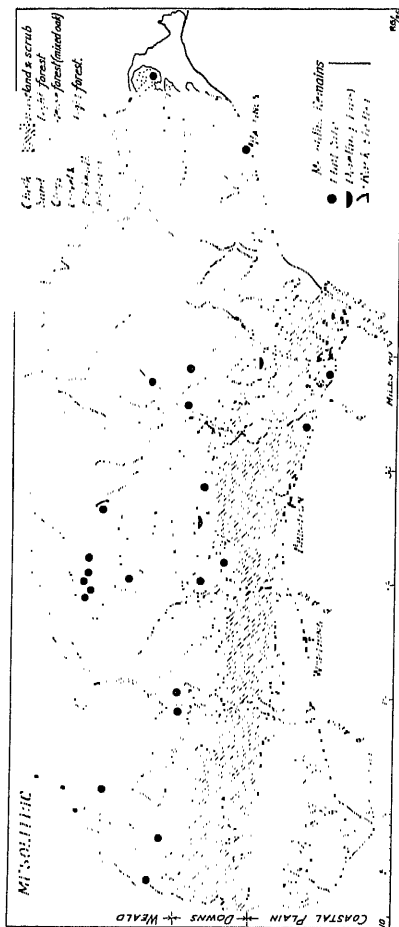


FIG. 7.—DISTRIBUTION OF MESOLITHIC REMAINS

Note preference for sandy sub-soils

classified according to their various shapes, with a resulting crop of more or less technical terms which we shall do our best to evade as far as possible, in the interests of the general reader. Four varieties chiefly concern us in Sussex—micro-burins, hollow-based points, obliquely blunted points, and roughly triangular points—the salient characters of each of which the reader will be able to appreciate from the accompanying illustrations without further description. (a) Micro-burins (fig. 9) are a feature of the Tardenoisian, and are

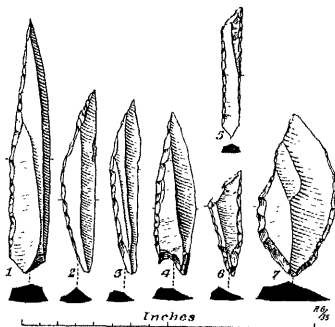


FIG. 8.—MICROLITHS ($\frac{1}{2}$)

1-4, 6, 7, Selmeaton (L.M.); 5, Hassocks (E.C.)

abundant only towards the middle of that period.¹ Professor Clark's view, and that of most authorities, is to regard them as merely a by-product of the manufacture of microlithic implements, and as such marking a peculiar technique.² (b) Hollow-based points may be symmetrical or asymmetrical, the latter being developed in all probability from the former and being characteristic of Sussex and Surrey.³ (c) The obliquely blunted point is the commonest type, while (d) the roughly triangular point is also common. So small are

¹ Dr. W. Hooper, *S.A.C.*, lxx. (1929), pp. 203-4.

² Clark, *Mesolithic Age in Britain*, Appendix I.

³ *Ibid.*, Appendix II.

these flints that in many cases they must have served as members of composite implements, such as barbs for wooden spears and arrows—very much as sharks' teeth are used by primitive races at the present day (plate V, lower left).

(2) The *tranchet* axe is an elongated block of flint which has been shaped by the removal of suitable flakes (fig. 10, 1). The cutting edge is at one end and has been produced by taking off a single transverse flake. Such axes were easily sharpened by a repetition of this process, the flakes so obtained being recognizable by their possession of part of the original edge of the axe (fig. 10, 2). These

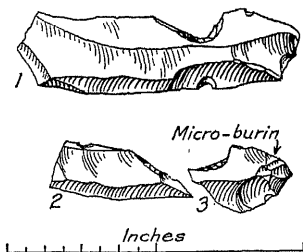


FIG. 9.—THE MICRO-BURIN AND ITS FORMATION ($\frac{1}{2}$)

1, 2, Selmeston; 3, Hassocks (all L.M.)

axes probably mark an admixture of Tardenoisian with such influences as are found at Maglemose in Denmark. They may have been hafted in sleeves of deer's antler, through which wooden handles were inserted.

(3) The *petit tranchet* is the earliest recognizable type of arrow-head. It is 'chisel-pointed', and resembles the bird-bolts of later times, for which purpose it may well have been intended (fig. 11). Like the *tranchet* axe it is typical of the Continental cultures of Le Campigny and the Danish kitchen-middens, though its use extended into the Neolithic period.

Beside these, we find small, neatly worked scrapers, and also, occasionally, concave scrapers suitable for shaping the shafts of

arrows, and delicately worked flint saws. As a rule, the sites of Mesolithic occupation are betrayed by large numbers of delicate flint flakes which are the waste-products of the manufacture of tools and weapons, and also small cone-shaped cores from which such

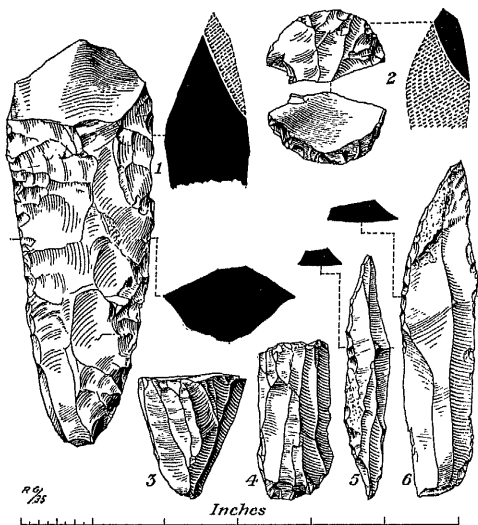


FIG. 10.—MESOLITHIC FLINT IMPLEMENTS ($\frac{1}{2}$)

1, *Tranchet axe*, Selmeston (L.M.); 2, *Sharpening flake struck from tranchet axe*, Selmeston (L.M.); 3, *Core*, Halland (E.C.); 4, *Core*, Selmeston (L.M.); 5, *Steeply trimmed point*, Selmeston (L.M.); 6, *Ditto*, Broadhurst, Horsted Keynes (L.M.)

flakes have been struck (fig. 10, 3, 4). These remains are usually found on the surface of ploughed fields, or else exposed in the edges of sand-pits.

As to the localities in which he lived, Mesolithic man was peculiarly selective, for almost without exception his remains in Sussex have been found on sandy soil (fig. 7). For instance, on the

Tunbridge Wells Sand, which forms part of the Hastings Beds stretching across north and east Sussex, we have an important group of sites between Horsham and Balcombe, most of which were carefully hunted by Mr. C. J. A. Attree and the late Mr. E. J. G. Piffard, whose collection of microliths is probably the finest in the country.¹ Farther east there are sites at Balcombe under a rock shelter,² Buxted,³ Isfield,⁴ Halland,⁵ Hastings⁶ and Playden (near Rye).⁷ Then the Lower Greensand ridge is also of special importance,

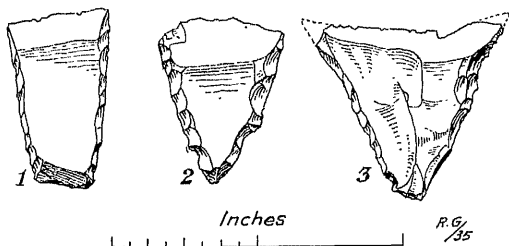


FIG. II.—'PETIT TRANCHE' ARROW-HEADS ($\frac{1}{2}$)

1, Hassocks (E.C.); 2, Litlington (L.M.—R.G.R.); 3, near Horsham (E.J.G.P.)

yielding remains at Black Down (Haslemere),⁸ West Heath (Harting),⁹ Trotton Heath,¹⁰ Stopham,¹¹ Pulborough,¹² Henfield,¹³ Clapper's Lane (Fulking, and neighbourhood),¹⁴ Hassocks,¹⁵ Streat¹⁶ and

¹ *Arch. J.*, xc (1934), pp. 52-77. This collection is now in the Lewes Museum.

² Found by Mr. M. Holland; *S.N.Q.*, v (1935), p. 185.

³ Found by Rev. K. H. McDermott.

⁴ Brighton Museum.

⁵ Lewes Museum.

⁶ *J.R.A.I.*, 1895.

⁷ *Ant. J.*, xv (1935), p. 159.

⁸ *South-Eastern Naturalist* (1904), p. 55; Clark, *Mesolithic Age in Britain*, pp. 73-5.

⁹ *S.A.C.*, lxxiii (1932), pp. 145-55; lxxviii (1937), p. 224.

¹⁰ Found by Professor Grahame Clark.

¹¹ Found by Mr. E. W. Martin; Lewes Museum.

¹² Lewes Museum.

¹³ Dr. E. Curwen and Mr. E. J. G. Piffard's collections, now in Lewes Museum.

¹⁴ Dr. E. Curwen's collection, now in Lewes Museum.

¹⁵ Mr. H. S. Toms, *Antiquary*, July 1915.

¹⁶ Mr. Brook; Brighton Museum.

Selmeston.¹ Finally, we have two sites on small patches of Tertiary Sand (Woolwich Beds) on the Downs near Peacehaven² and Seaford;³ nothing could better illustrate Mesolithic man's preference for sand and his abhorrence of bare chalk, for from all the range of the chalk Downs not a single microlith has been recorded.⁴ Knowing nothing of agriculture or grazing he found nothing in the Downs to attract him, but the heaths and sparse woodlands of the sandy country presented ideal conditions for hunting and dry sites for habitation. The clay lands of the Weald would also be useless to him, not only because they are cold and damp for habitation, but because in a state of nature they would be covered with dense

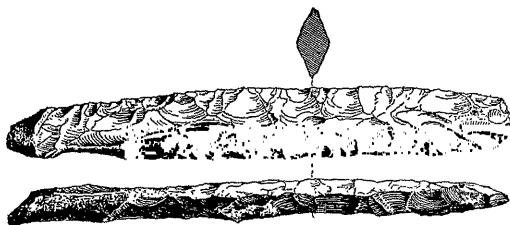


FIG. 12.—FLINT BATON (?), HASSOCKS (L.M.) (§)

impenetrable forest, not worth the effort of clearing with *tranchet* axes.

Some of the individual sites mentioned need further reference.

The so-called Hastings kitchen-middens were found by the late Mr. W. J. Lewis Abbott in clefts in the sand below the Castle at Hastings. Animal bones, pottery and Mesolithic flints were found together and were therefore interpreted as a refuse dump of Mesolithic date, analogous to the famous Danish kitchen-middens. Not

¹ Mr. W. J. Parsons, Dr. E. Curwen and Professor Grahame Clark; see *Ant. J.*, xiv (1934), pp. 134-58.

² J. B. Calkin, *S.A.C.*, lxx (1924), pp. 224-41.

³ Professor Grahame Clark, *Man* (1930), No. 2.

⁴ Some years ago the author found two microliths on Red Hill, by the Dyke Road, near Brighton, but this site lies on a patch of tertiary clay-with-flints.

only, however, is Mesolithic pottery unknown in Britain, but of the actual specimens preserved in the Hastings Museum some are certainly medieval and the rest not older than the Early Iron Age at earliest. The 'midden', then, is probably referable to the medieval castle, and is much later than the associated flints.

The microlithic industry at Hassocks was discovered by the late Mr. H. S. Toms in the Stonepound sand-pit, since when much other similar material has come to light in the gardens of neighbouring houses. Mr. Toms had the good fortune to discover in the side of the sand-pit the section of what had been a pit—perhaps a dwelling-pit—about 6 feet wide and $2\frac{1}{2}$ feet deep, containing 70 microliths, a *tranchet* axe, 3 scrapers, 2 flint saws, 30 cores and about 2,000 flakes. Here, therefore, had lived an artisan of this period, and here was his workshop. Not far away two micro-burins were found, but perhaps the most remarkable implement from this site was found by the late Mr. J. E. Couchman, F.S.A. This (fig. 12) is a narrow, celt-like blade, $8\frac{1}{2}$ inches long, shaped by flaking from a long, thin nodule and preserving part of the crust of the latter at what must have been its handle-end. The workmanship of this implement is not like that of the Mesolithic period, but resembles more that of the Neolithic or Early Bronze Age, so that its inclusion here is merely tentative.¹ The type is very rare, and so far cannot be precisely dated. Part of a similar specimen was found by the author in the sand-pit at Selmeston, next to be described.

The sand-pit near Selmeston Church (51/514069) is perhaps the most important of all the Mesolithic sites in Sussex, for here were found some of the dwelling-pits of Mesolithic man, two of which pits were very carefully excavated by Professor Clark in 1933.² With the exception of Mr. Toms' pit at Hassocks, already referred to, this was the first occasion on which such a discovery had been made in Britain. The first pit excavated yielded over 6,400 flints for which Mesolithic man had been directly responsible, including worked implements (210), cores, flakes (over 5,000), and burnt flints (over 700). Many of the last group were 'pot-boilers' or cooking-stones which had been made red hot and dropped into water in order

¹ S.A.C., lxxiii (1932), p. 199.

² *Ant. J.*, xiv (1934), pp. 134-58.

to heat it, or else used for cooking food. Such stones are common in the later prehistoric periods. It was also evident that when this pit had gone out of use and had been nearly filled with drifting sand so that only a slight cup-shaped hollow marked its site, some Neolithic folk had reoccupied it, lit fires in it, and left behind them a few scraps of pottery, just enough to sign their names, so to speak, in the visitors' book. For the pottery is recognizable as what we shall in the next chapter describe as Peterborough ware, or 'Neolithic B'.

Now the ashes of the fires belonging to the original Mesolithic occupants of both the pits excavated were derived almost entirely from hazel-wood, only two fragments of oak and one of hawthorn being recognized. Even the shells of some hazel-nuts were recovered, and from these facts one may infer that the local trees at that time were predominantly hazel, but that oak was not entirely absent. In the Neolithic hearth, however, all the charcoal without exception was of oak, so that in the absence of good reasons to the contrary we may infer that by Neolithic times hazel had been replaced by oak in the local woods. Too much, however, must not be made of the evidence of a single hearth, but the important thing is that in the earlier period oak was already arriving, which shows that the village cannot date earlier than towards the end of what is known as the Boreal climatic period, for previous to this the oak had not yet arrived in Britain. The evidence of the flint implements—set forth in detail in Professor Clark's report—assigns the site to the latter part of the Mesolithic period, and indeed the fact that the pits were still visible as hollows in the sand when the Neolithic folk sojourned there seems to indicate that no very vast space of time can have elapsed between the two occupations.

As the detailed study and classification of Mesolithic flints is not such as is likely to appeal to the general reader, and as the student and specialist will find them very fully described in Professor Clark's publications, already cited, there is no need to dwell on them here. Rather let us make use of the conclusions to which they lead and try to reconstruct a brief picture of the times.

We find man still a savage, without agriculture, without domesticated animals, and without pottery, living by hunting, fishing and

gathering such edible fruits as nature provided. In short, he was still a 'food-gatherer' and not yet a 'food-producer'. He had a marked preference for living on sandy ridges which were covered with heath and hazel woods, where the soil was dry and where game could be found, though no doubt his hunting expeditions led him into the densely forested clay-lands and the bare or scrubby chalk uplands. But hitherto the chalk had been dry and waterless, as it is to-day, and therefore could not support human life under such primitive conditions, except in certain carefully chosen sandy patches. His home lay in a village consisting of a cluster of shallow pits, roofed, no doubt, with hazel boughs and thatched with heather. Within was the fire where the food was cooked and the water heated in skins with hot stones, while he himself sat and made his tools and weapons with deft fingers, knapping flints, and mounting them on wooden hafts which had themselves been shaped with flint axes, saws and scrapers. Thus he fashioned his bow and his arrows, his javelins and fish-spears tipped and barbed with flint. But the oaks were beginning to spring up among the hazels, heralding a change from cold, dry north-east winds to warm, wet and blustering south-west gales—a change which in due course witnessed the coming of the earliest rudiments of material civilization.

Chapter V

THE DAWN OF CIVILIZATION

And see you marks that show and fade,
Like shadows on the Downs?
O they are the lines the Flint Men made,
To guard their wondrous towns.

Trackway and Camp and City lost,
Salt Marsh where now is corn;
Old Wars, old Peace, old Arts that cease,
And so was England born!

RUDYARD KIPLING ¹

UP to this point we have been dealing with the relics of peoples who were still merely 'food-gatherers', that is, they lived only on what nature provided—hunting, fishing, and collecting wild fruits, nuts, leaves and roots which they could cook and eat. The evidence provided by their tools and by the bones found in their settlements yields no grounds for believing that these people had as yet learnt to augment nature's scanty supply by domesticating animals or by cultivating useful plants. From now on, however, we do at last find such evidence, and the distinction marks one of the greatest advances in the whole history of the human race. We have now to see how and when this came about.

The earliest cereals to be cultivated in the ancient world were wheat and barley, the wild prototypes of which are still found growing over a limited area in the Near East. It is only in Palestine and Syria that the two wild cereals are found growing together, and ancient Egyptian tradition asserts that it was from Palestine that they were first introduced into Egypt.² Corresponding to this, the most

¹ Cited by permission of Mrs. Kipling, from *Puck of Pook's Hill*.

² *Antiquity*, i (1927), p. 262; E. C. Curwen, *Plough and Pasture* (London, 1946), pp. 13 ff.

recent archaeological evidence points in the same direction, for in 1933 Miss Dorothy Garrod, excavating in some caves in Mount Carmel, in Palestine, found the earliest-known indications of man's contact with cereals. This consisted in a number of flint sickles set in bone mounts, similar to a type which became well known in later times, but in this case they were found to have been made and used by a Mesolithic people at a period probably well before 5000 B.C.¹ Sickles may have been used at first for cutting wild cereals, but in general they are accepted as evidence that their owners practised the cultivation of grain. No bones of domesticated animals seem to have been found with these implements. At a period subsequent to that of these sickles, perhaps about 5000 B.C., we observe the rise and growth of something that had never happened before, namely, the rudiments of a settled material civilization, and we find this taking place in the fertile river-valleys on either side of Palestine—Egypt, Mesopotamia and Elam. The new elements which went to constitute this early civilization are found to consist of agriculture (i.e. corn-growing), the domestication of certain animals, the smelting of copper and gold (primarily for making ornaments), the making of pottery, and the grinding and polishing of stone implements. Following hard on the heels of these achievements came the building of cities and the art of writing.

The study of the beginnings of European civilization consists in tracing the spread of the knowledge of these arts across Europe till they finally reached our own shores. The process of spread was extremely slow and depended, no doubt, on such factors as migrations, the movements of traders and prospectors, and, above all, the available means of transport. Previous to the domestication of the camel and the horse in the Near East, and the construction of sea-going ships, travel and contact between peoples must have been very restricted, and therefore the spread of ideas extremely slow. Nevertheless, by co-ordinated archaeological research in different

¹ *Antiquity*, viii (1934), p. 136 and pl. II; also René Neuville, *Les Débuts de l'Agriculture et la Faucille Préhistorique en Palestine*, Extract du Recueil de la Soc. Héb. d'Explor. et d'Arch. Palestiniennes, Jerusalem, 1934, summarized and reviewed in *Antiquity*, ix (1935), pp. 62-6.

countries, the routes by which the elements of material civilization reached Britain have been to some extent traced, and the stages of spread roughly dated.¹ Thus one main route lay by Troy and the Danube valley to Switzerland and Germany; the other was a sea-route for coastal trade, starting from the Aegean islands, by Corinth, Sicily, the coasts of France and Spain, Brittany, the Irish sea, and so round the north of Scotland to Scandinavia, where contact and fusion was made with influences that were arriving overland from Central Europe. From both routes trade branched off at various points, and when such branches met and fused they often produced thereby distinct local cultures.

The first arrival in Britain of some of the elements of civilization to which we have referred marks the beginning of the *Neolithic* period. When did this take place?

Previous to 1925 the Neolithic was one of the most nebulous and least understood of all the prehistoric periods. As to when it began and its duration the wildest guesses were made; a leading archaeologist in 1909 claimed to have proved that it lasted between 200,000 and 300,000 years, and even until quite recently there has been a general impression that its beginning should be placed about 10000 B.C., though few would probably be able to assign a reason for this date. Still less could it be said what constituted the distinctive features of the Neolithic period, except that flint implements were ground and polished. In fact, the Neolithic was generally regarded as a pigeon-hole into which could be pushed everything that did not obviously belong to the Palaeolithic or to the ages of bronze and iron. The term was stretched even more by a few responsible and many irresponsible writers to include practically what we call 'prehistoric' to-day, so that it is still axiomatic with many people that our hill-top and other earthworks are 'Neolithic'. In point of magnitude of error this is like grouping together all the various styles of architecture from Norman to late seventeenth century and calling them all 'Norman', while, from the point of view of chronology and of architectural style, to call most of our

¹ V. Gordon Childe, *The Dawn of European Civilization*; H. J. Peake and H. J. Fleure, *The Corridors of Time*, vols. III-VI (1927-9).

hill-forts Neolithic would be like attributing the Houses of Parliament to the Romans. It is one of the duties of scientific archaeology to clear up this muddle and to clarify our perspective.

As it turns out, there are a few—a very few—‘camps’ or hill-forts which are rightly attributed to Neolithic folk, and it is the excavation of some of these since 1925 that has revolutionized our views, and that is giving us year by year a clearer picture of this much-abused period. As a result the estimated duration of the Neolithic in Britain has come down from 300,000 to something like 500 years, its beginning being placed by different students between 2600 and 2200 B.C., and its end between 2000 and 1800 B.C. The features which distinguish it from the preceding Mesolithic periods are, as we have seen, the knowledge of certain of the arts or elements of civilization, such as the growing of corn, the domestication of the ox, pig, sheep and dog, the making of pottery, and the grinding of flint implements. The last-named, however, was much more characteristic of the early part of the Bronze Age which followed the Neolithic. The fact that the knowledge of copper-working lagged behind the other arts can no doubt be accounted for in a variety of ways: copper had not yet been discovered in or near Britain, and in any case a copper axe is a far less serviceable tool than one of flint, and Britain was the home of some of the best flint in Europe. It was not till the arrival of the harder and more useful alloy of copper and tin, called bronze, about 1800 B.C., that metal began very slowly to take its place in the industrial life of Britain; even then its adoption was so gradual that its effect on the life of the people was infinitesimal, whereas the introduction of corn, cattle and pottery had effected the greatest revolution in human ways of living that can be imagined. The transition, therefore, from the Neolithic period to the Bronze Age was not only extremely gradual, but it was so unimportant culturally that it may be regarded from this point of view as little more than an incidental feature. What the Neolithic period initiated was a pastoral stage which continued down to the end of the Middle Bronze Age (1000 B.C.), and during which man’s principal occupation was stock-raising, together with a relatively small amount of nomadic agriculture; traces of this latter

may probably be seen in some of the hut-circle settlements on Dartmoor and Bodmin Moor, associated with small corn-plots of oval or irregular plan.¹ In a similar way the Late Bronze Age, as will be seen in a later chapter, initiated an agricultural stage some 500 years before the arrival of iron.

The essential character of the brief Neolithic period may therefore be illustrated by a number of comparisons. In its relation to the hunting stages that had gone before and to the rise of civilization in the Near East, it is like the first lapping on our distant shores of the ever-widening ripples that brought us the benefits of that civilization. In relation to the progress of man's inventions the Neolithic period represents the twilight before the dawn of the Age of metal, or again, the antechamber to the Bronze Age, just as the Late Bronze Age was the antechamber to the Iron Age. Finally, in relation to metal itself, the Neolithic was, as it were, the Copper Age without copper, just as the Late Bronze Age was essentially part of the Iron Age though without iron (fig. 1).

These preliminary remarks are necessary to clear away much misconception regarding the period under review. If we, then, take 2500-1800 B.C. as the approximate limiting dates of the Neolithic, we shall see that it occupies the first third of what we have called above the pastoral stage. How far is it possible to distinguish Neolithic relics from those of the Early and Middle Bronze Age which forms the rest of that stage? Traces of stock-raising and of petty agriculture are common to both. The absence of bronze is not a safe guide, as this metal only became moderately common in the Middle Bronze Age. Flint implements are principally useful in so far as certain types are characteristic of the Early Bronze Age; there are only two types that are at all peculiar to the Neolithic, and they are the leaf-shaped and lozenge-shaped arrow-heads; the hey-day of the polished flint axe or celt was in the Early Bronze Age, and this tool is therefore no criterion of Neolithic date.

There is only one class of object by which the Neolithic period may be at all certainly distinguished from the earlier part of the

¹ *Antiquity*, i (1927), pp. 281-5; H. O'N. Hencken, *Archaeology of Cornwall and Scilly* (1932), pp. 98-102.

succeeding Bronze Age, and that is the pottery. The existence of Neolithic pottery in Britain has long been recognized, but it was until 1925 so rare that the known specimens could have been enumerated on the fingers. Since, however, the recognition and excavation of some of the 'camps' of this period great quantities of pottery have been found, so that it is now becoming possible to study and classify the various types and to draw tentative deductions as to their relationships to one another and to the corresponding wares on the Continent. The matter is still very much *sub judice*, so that anything like dogmatism is out of place.

Two main classes of Neolithic pottery have been distinguished in Britain, representing two distinct cultures.

(1) The wares belonging to the Neolithic A or 'Windmill Hill' culture are varieties of those common to Western Europe at this period. They comprise two sub-groups: A1 or 'Windmill Hill' proper and A2 or 'Abingdon' ware. These distinctions, though seemingly tiresome, are nevertheless necessary if we are to trace the immediate origins of our Neolithic cultures.¹

(a) A1 pottery, of which characteristic examples appear in plate IV, 1, 2, consist of round-bottomed vessels of bowl or bag-shaped form, crudely hand-made, and practically devoid of ornament. They are most usually of a brownish-grey colour with leathery surface, of fairly fine paste containing a variable amount of flint-grit, and not always very well baked. Being hand-made, that is, not turned on a wheel, they are often far from symmetrical; the rims are usually plain—sometimes slightly beaded. They are usually provided with a pair of small projecting lugs for handles; these occasionally have a small hole pierced vertically through them, as if intended to enable the pot to be suspended by a cord. This type does not normally have any shoulder or ridge (or 'carination') round the vessel, nor any 'neck' separate from the body.

(b) Of A2 pottery characteristic examples are shown in plates IV,

¹ For Neolithic pottery see *Ant. J.*, vii (1927), p. 450; viii (1928), p. 471; *Arch. J.*, lxxxviii (1931), p. 37; *Antiquity*, viii (1934), p. 24; *P.P.S.E.A.*, vii (1934), p. 373; *P.P.S.* (1935), p. 127. See also Stuart Piggott, *Neolithic Cultures of the British Isles* (Cambridge, 1954).

3-8, and V, 2-8. These also are round-bottomed, but are as a rule of wider and shallower form, and they have as a special feature a carination or projecting shoulder placed about 2 or 3 inches below the rim. Very frequently this shoulder, and the rim which is often thickened, are covered with series of short, oblique incised lines, and it has been suggested with fair probability that this type of vessel may have been a clay imitation of a leather basin, the mouth of which had been kept open by having two withies bent round and stitched, one at the lip, and one about 2 or 3 inches lower. The latter would produce a bulge which in the pottery vessel forms the carination, while the oblique incised lines are reminiscent of the stitches which had held the withies in place. The vessels are better made, and of better clay, than those of A1; they are usually dark grey and leathery, but are sometimes burnt to a dull red. Handles consist of lugs as before, and are frequently perforated vertically for suspension. Occasionally one or more holes have been bored through the side of the vessel below the rim, after baking, as if the housewife found that an additional point of attachment would make her pot hang more evenly as it swung from the roof-timbers of her hut.

While these descriptions indicate the chief characteristics of the two varieties of Neolithic A pottery, they cannot be put into watertight compartments, for there is a certain amount of blend or overlap between them. As to the origin of the differences nothing can yet be said for certain. Did A2 develop from A1 after its arrival in Britain, or do they represent two separate Continental sources? The A1 type is found as an early form in Western Europe, particularly in the Swiss lake-dwellings, but nothing exactly corresponding to A2 has yet been found on the Continent. The nearest approaches to it are found in what is called the Michelsberg culture of Germany, Switzerland and Belgium, and Professor Stuart Piggott has suggested that the A2 type may have evolved in Britain as a development from the Michelsberg, together with a certain amount of ideas borrowed from our own Neolithic B pottery.¹ On the other hand, Mrs. Hawkes has pointed out that Michelsberg is too late to

¹ *P.P.S.E.A.*, vii (1934), pp. 373-81.

be ancestral to our A2,¹ and it may be more likely that the features common to both these types may have been due to the influence of Mesolithic aborigines. However this may be, it is important to notice that the special form of Neolithic 'camp' which we shall describe presently is, so far as present knowledge goes, peculiar to the Michelsberg culture on the Continent, and, with one important exception, to our A1 and A2 pottery-types in southern England.

(2) The 'Neolithic B' or 'Peterborough' culture has mostly been found in lowland situations in the east of England, though it later spread towards Wiltshire, where its pottery is found at higher levels, and therefore later, than Neolithic A. This consists of round-bottomed bowls with thick rims and deeply concave necks, but the characteristic feature distinguishing it from Neolithic A is the exuberance of impressed ornament with which the whole outer surface is covered. Very few shards of fully developed 'B' ware (Piggott's 'Mortlake' ware) have been found in Sussex, as will be noted presently, and therefore the type need not detain us; what is much more important for us is a variety, known as 'Ebbsfleet' ware (after the type-site in Kent), which Professor Piggott considers to represent an early stage in the development of Neolithic B.² Ebbsfleet ware differs from the fully developed 'B' in certain respects, especially in having undeveloped rim-profiles and less exuberant decoration. The latter consists of incisions frequently made with a finger-nail and often running in an oblique series across the rim, finger-tip impressions, cord impressions in parallel vertical or oblique lines, and herring-bone incisions. This ware resembles the Scandinavian 'dwelling-place' pottery, and may share with it a common origin, or, more likely, a parallel development, and in England it has been found in a few sites between Essex and east Sussex. Professor Piggott has shown reason for regarding Neolithic B pottery—and by inference Ebbsfleet ware also—as a product of the reaction of the Mesolithic natives to the impact of Neolithic civilization.

In speaking of the arrival of Neolithic culture in Sussex we have

¹ P.P.S. (1935), pp. 127-9.

² Burchell and Piggott in *Ant. J.*, xix (1939), pp. 405-20.

to consider whether it may have been brought by invading peoples or by the movements of trade; in other words, were our Neolithic folk new-comers blending with, or replacing, our Mesolithic population, or were they rather the descendants of the latter who through trade-contacts had learnt something of the elements of embryonic civilization? This question cannot be answered definitely until we know whether or not the physical proportions of Mesolithic man's body corresponded with those of Neolithic man, for at present we have not a single example of a skeleton of the former from Britain, though we have a fair number of specimens of the latter. At any rate there is no reason to believe that the arrival of Neolithic culture found Sussex uninhabited. Mesolithic folk were dwelling on the sand-hills, mainly in the Weald, as we have already shown, and Professor Grahame Clark has shown that some of them must have continued to dwell there in the forests throughout the Neolithic period and into the Bronze Age, only partly influenced by the more progressive culture on the Downs. This being so, we should be prepared to find corresponding influences exerted by the Mesolithic aborigines on some of the local Neolithic cultures.

This cultural overlap seems to be reflected in a peculiar tool found at Thakeham on the Lower Greensand in west Sussex.¹ It consists of an adze made of the local chert, of Mesolithic form, but partly polished in the Neolithic manner. It seems unlikely that a Neolithic man, having all the resources of the flint-mines at hand, would make a tool of Mesolithic form out of an inferior material which was only to be obtained in the area where Mesolithic man had lived. The inference rather seems to be that the latter continued to occupy his old haunts after the arrival of the bringers of Neolithic civilization, while adopting some of their new ideas.

This brings us to the question of the distribution of population in Neolithic times. We have seen that the only certain portable relic of this period is the pottery, but we also have the characteristic 'camps' and the burial mounds called 'long barrows', each of which will be described presently. Not only are flint axes and arrow-heads insecure guides chronologically, but from their very nature they are

¹ *Ant. J.*, xiv (1934), pp. 426-8.

tools and weapons that were likely to be lost in forest country, far from the haunts of men, and are therefore no certain guide to the distribution of population. From the pottery and the specific kinds of earthworks we learn that Neolithic man lived mainly on the Downs, though, no doubt like his successors, he used the Wealden forests for hunting, feeding swine and gathering fuel (fig. 13). This marked contrast to the distribution of his predecessors who lived in the sandy forests of the Weald is, of course, due to Neolithic man's need for pasture for his flocks and herds, and open ground on which to sow his scanty store of grain. A further reason why he preferred the chalk hills lay in the fact that he had discovered how to sink

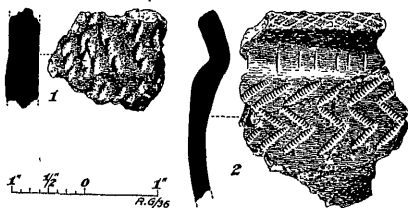


FIG. 14.—NEOLITHIC POTTERY ($\frac{1}{2}$)

1, Type B fragment, Selmeaton (L.M.); 2, Ebbsfleet ware, Whitehawk (B'ton M.)

mines in search of the very superior quality of flint that lies in seams in the chalk—a discovery which does not seem to have been made by his predecessors, at least in Sussex.

At Selmeaton, as we have already seen, some Neolithic B folk left a few small shards of their pottery in one of the half-obiterated dwelling-pits left by their Mesolithic predecessors. These shards, one of which is here illustrated (fig. 14, 1), are of soft, coarse paste containing fragments of burnt flint, coloured a dull red or black, and ornamented profusely by pressing a twisted thong into the clay when it was wet. An idea of what such pottery looked like in an unbroken state is afforded by certain complete bowls found in the Thames at Mortlake and elsewhere.¹ In spite of their preference for

¹ The Mortlake bowl is illustrated by D. C. Whimster, *The Archaeology of Surrey* (1931), plate II; and in *B.M. Stone Age* (1926), p. 97.

lowland situations and for soils that under primitive conditions were less easily cultivable than the chalk Downs, the makers of this Neolithic B pottery were certainly cultivators. It is possible, therefore, that it is to these people that one should attribute a flint sickle-flake found in the sand-pit at Selmeston, though it was not found directly associated with the pottery.¹ This flake, which resembles types found commonly in the Near East, has very little in the way of secondary chipping, but is remarkable for the brilliant lustre which covers both faces adjacent to one of its edges, fading away towards the opposite edge. This diffuse lustre, similarly distributed, is very commonly found on flint sickle-flakes in Palestine and Egypt, and is now recognized as having been caused by the prolonged use of the flint for cutting corn, for the silica contained in straw is capable of producing polish on flint if the friction is long continued.² As already stated, the sickle-flake from Selmeston may reasonably be attributed to the Neolithic B folk there, though not with certainty. Other sickle-flakes of comparable type but uncertain date will be described in the next chapter.

The only other Neolithic B pottery from Sussex consists of single shards from Selsey,³ Castle Hill (Newhaven),⁴ and Friston.⁵

A small vessel of beaker-like form and presumed Early Bronze Age date, found in a pit in the Lower Greensand at Chalvington, between Lewes and Hailsham, bears also a series of maggot-shaped impressions which must be a survival of Neolithic B technique.⁶

Having discussed the pottery we must now consider the sites where Neolithic man lived, worked and was buried. These consist in the 'causewayed camps', the 'long barrows' and some of the flint mines. It will be convenient to consider the last of these in a separate chapter.

¹ *Ant. J.*, xiv (1934), pp. 389-92.

² *Antiquity*, iv (1930), pp. 179-86; ix (1935), pp. 62-6.

³ *Ant. J.*, xiv (1934), pp. 41-2; *S.N.Q.*, iv (1932-3), p. 217.

⁴ *S.A.C.*, lxxx (1939), pp. 264-5.

⁵ In the Lewes Museum.

⁶ In the British Museum.

THE CAUSEWAYED CAMPS

It has already been remarked that our hill-top earthworks are too often popularly described as Neolithic, and in most cases quite unjustifiably so. There are, however, about a dozen earthworks in Britain which form a peculiar group, some of which have been proved to date from this period while the others exhibit the same special features.¹ The most famous of these Neolithic camps is Windmill Hill, near Avebury in Wiltshire, which was extensively excavated by Mr. Alexander Keiller, F.S.A., since 1925, and after which the 'A' type of pottery is frequently called. Sussex is the proud possessor of no less than four of the dozen sites known in Britain; three of these four have been proved by excavation, namely, those at Whitehawk, the Trundle and Combe Hill² (near Eastbourne), while the camp on Barkhale Down³ (a spur of Bignor Hill), exhibits the characteristic peculiarities of Neolithic fortification (figs. 17 and 18).

The chief of these peculiar features lies in the fact that the ditches which form part of the defences are not continuous but are broken up into numerous segments by causeways of undisturbed chalk. Hence they are sometimes known as 'causewayed' camps—a convenient if inelegant term—or as camps with interrupted or segmented ditches. This feature has not been found in earthworks of any other period than the Neolithic, so that on the evidence at present available a site that possesses definite interrupted ditches may with considerable confidence be attributed to that period pending final proof by excavation.

On the Continent only eight examples of causewayed camps have been identified, and these are exclusively found associated with remains of the Michelsberg culture in Germany and Belgium,⁴ though it must be admitted that the type has not yet been seriously sought for in France.

¹ *Antiquity*, iv (1930), pp. 22–54.

² *S.A.C.*, lxx (1929), pp. 209–11.

³ Discovered by Professor J. A. Ryle.

⁴ Information from Professor G. Bersu.

(1) *Whitehawk Camp, Brighton* (plate II and fig. 15) (51/330048)

The most remarkable example of this type of earthwork in Sussex is Whitehawk Camp, situated on the Brighton Race-course.¹ This lies on the back of a ridge, at a height between 350 and 400 feet O.D., and rather less than a mile from the present coastline. The site will be found on the eastern edge of the town, a little to the south of the grand-stand of the race-course, and opposite the top of Freshfield Road. The camp is curiously situated in a saddle between two low eminences, the northern of which carries the grand-stand, while the southern is distinguished by a flag-staff. On the east the ground falls precipitously into Whitehawk Bottom, where are now playing-fields and the Whitehawk housing estate. On the west the slope is fairly steep into Baker's Bottom which is occupied by allotment gardens. Between the race-course, the allotments and various minor roads the camp has suffered badly, for the pulling-up ground goes right across it, necessitating some levelling of the ramparts, and cultivation has damaged some of the earthworks elsewhere. In spite of this the author was able to make a fairly complete plan of the site in 1928 (fig. 15), from which it will be seen that the camp is oval in shape and consists of no less than four concentric rings of interrupted ditches which do not conform to the contours of the hill. These features are all peculiarly characteristic of Neolithic fortification. The greatest diameter of the camp is about 900 feet from north to south, and its area is about $11\frac{1}{2}$ acres; the innermost ring averages some 300 feet in diameter and encloses something less than 2 acres. It will be observed that the four rings are spaced out, leaving intervals of the natural ground-surface between them; this is another suggestive feature, but it is not entirely peculiar to Neolithic work. Though Whitehawk Camp is not the largest of its kind, Windmill Hill at Avebury (Wiltshire) having an area of about 23 acres, yet it is the only one that has more than three concentric rings. Indeed, there is actually a fragment of a fifth ditch underlying the race-course near the grand-stand; this was probably never more than

¹ S.A.C., lxxi (1930), pp. 56-96; *Ant. J.*, xiv. (1934), pp. 99-133; also S.A.C., lxxvii (1936), p. 60.

an outlying defence, not a complete ring, and as such forms yet another characteristic of Neolithic fortification. Traces of a fifth and

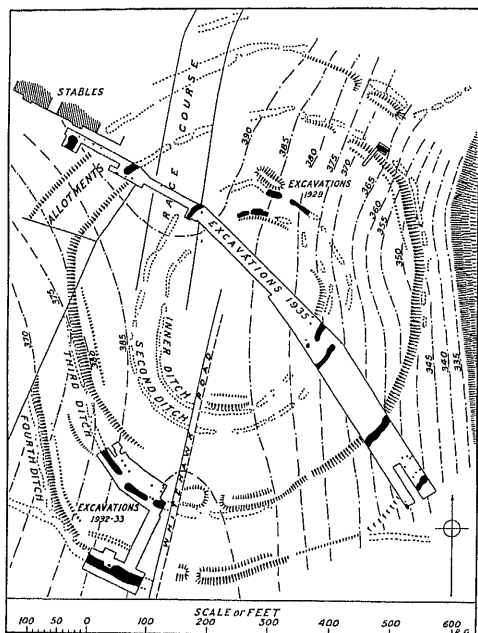


FIG. 15.—PLAN OF WHITEHAWK CAMP, BRIGHTON, SHOWING OUTLINES OF DITCHES AS DETERMINED BY PERCUSSION OF THE GROUND, AND THE PARTS EXCAVATED IN 1929, 1932-3 AND 1935 *

Survey of Ditches by E.C.C.

even a sixth ditch were found on the south-east side when making the new road in 1935; these were no doubt detached outlying defences designed to cover the easy approach from that direction.

In 1821 the Rev. J. Skinner depicted two lines of defence running across the southern nose of the hill.¹ On the east side, where the ground falls precipitously, the fourth or outer ring is deficient, but its northern termination turns out radially before it reaches the brow of the hill, as if to shut off the triangle of ground it helps to enclose. Similarly, at the south-west corner of the camp a branch of the fourth ditch runs off almost tangentially towards Baker's Bottom to cut off a similar triangle. Skinner's plan made in 1821 shows this, and also a similar tangential ditch at the south-east corner,² which is probably our 'fifth' ditch.

A study of the plan will show that all the ditches are interrupted by causeways at irregular intervals, and in some places are broken up into a mere string of pits. The third and fourth (that is, the two outermost) ditches are for the most part accompanied by the remains of a rampart on their inner sides. Where these are best preserved they still stand about 7 feet above the present bottoms of the ditches. Very little trace of any bank or rampart accompanies the two innermost ditches, in fact for quite half their extent they have been completely obliterated in levelling the race-course, and for the other half they are traceable only with great difficulty. Where, however, all trace of them has been lost it has been possible to recover the approximate outline of their plan by the method of sounding the ground with a rammer, by which means it is often possible to distinguish between loose, disturbed soil and that which being undisturbed is compact, for the former yields a deeper and more resonant note on being struck by the rammer.³ By marking the ground with pegs at the points where the note changes and then making a surveyed plan of the pegs, it may be possible to recover the outline of the vanished ditches and also of the causeways by which they are interrupted, even though nothing whatever may be visible on the surface. This was the method employed at Whitehawk, not only in recovering the ditches that had been obliterated, but in testing the solidity of

¹ B.M. Ad. MS. 33658 (1821), folios 66, 69.

² *Loc. cit.*, f. 68.

³ *Antiquity*, iv (1930), pp. 30-1; E. Cecil Curwen, *Prehistoric Sussex* (1929-30), pp. 151-5.

the apparent causeways by which the visible ditches are interrupted. Subsequent excavation has generally confirmed the information obtained by percussion.

The author has on three occasions been in charge of excavations on this site: (1) in 1929 with the help of Mr. R. P. Ross Williamson the Brighton and Hove Archaeological Club examined the inner, second and third ditches on the north side of the camp, east of the race-course; (2) in the winter of 1932-3 emergency excavations were carried out in the third and fourth (outer) ditches on the south side prior to levelling for an extension of the pulling-up ground; and (3) in 1935, with the help of Miss Leslie Scott and others, a wide section was cut right across the camp from west to east, preparatory to the construction of the road linking Freshfield Road with the Manor Farm estate. In each case the work consisted in stripping off the surface soil and in removing that which in the course of ages had choked up the ditches, until the solid chalk sides and bottoms were laid bare, thus restoring their appearance when first dug. From 1 to 6 feet of loose chalk rubble and mould had to be removed, and this was done spit by spit in layers from 9 to 12 inches deep, so as to enable a record to be kept of the depth at which any objects of interest might be found.

Frost attacks bare chalk and causes it rapidly to crumble. As a result the sides of a newly dug ditch become eroded, especially in winter, and the chalk rubble so obtained falls to the bottom where it gradually accumulates. This process of 'silting' has been watched in modern ditches, and it has been found, for instance, that in a military trench dug to a depth of 5 feet in chalk no less than $3\frac{1}{2}$ feet of silt had accumulated in thirteen years.¹ During the period, therefore, in which the camp was occupied a considerable amount of chalk rubble collected in the bottoms of the ditches, and mixed up with it a varying amount of domestic refuse, mainly broken pottery and the remains of food, both animal and vegetable.

The inner ditch yielded the greatest concentration of such refuse; the outer ditch producing scarcely any. In the case of the former, after the first, or primary, silting had taken place the ditch was half-

¹ *Antiquity*, iv (1930), pp. 97-100.

filled with broken Neolithic pottery, bones and masses of refuse of a vegetable nature. This latter appeared as a grey-black mould which on examination proved to consist very largely of carbonized vegetable tissue mixed with some chalk, charcoal, and powdered flint. Above this could be distinguished the layer of turf where the grass grew during the Bronze Age, and above this again the soil which had subsequently been thrown into the ditch in a half-hearted effort at levelling the ground. The second ditch yielded evidence of a similar character, though it was not quite so prolific.

The third ditch was rather different. In most places where it was examined it was found that just above the primary silting there was a thin layer of dark chalk rubble, apparently representing a layer of domestic refuse or even of habitation. Above this the chalk silting continued in the normal manner with very little refuse contained in it. The dark band, or occupation layer, contained almost all the pottery and other refuse that was found in the third ditch, but this was not nearly so abundant as in the case of the inner ditch. All the ditches were very irregularly cut in the chalk, their depths varying from 3 or 4 feet in the two inner rings to 5 to 7 feet in the two outer.

Life at Whitehawk Camp must have been at a very low level. We have spoken of the Neolithic folk as enjoying the elements of material civilization, but this does not imply that they were in the least degree civilized in their manners. In fact the excavations here suggest that the reverse was the case, for the dark band in the filling of the third ditch disclosed some sordid secrets. In the middle of a stretch of this ditch, 50 feet long between two causeways, some one had squatted for a sufficient length of time to leave a good deal of litter. He had made a fire at which he cooked his food, for beside a large pile of ashes we found the fragments of several pottery vessels, some animal bones and nearly 100 burnt flints or 'cooking-stones'. But among the animal bones we found parts of the brain-pans of two human skulls, three small fragments of which had been charred in the fire; while scattered about the rest of this part of the ditch—all in the same dark layer—we came across three more human brain-pans and one or two other bits of human bone. All the five

individuals here represented were young; the oldest was not much, if at all, over twenty; the youngest was about six. What were these children's skulls doing round this domestic hearth unless the occupant of this piece of ditch was a cannibal? Not content, however, with living amid this filthy litter he must needs bury his young wife and her infant at the end of his little ditch, within 20 feet of his hearth. There we found her lying half on her face, with her knees drawn up, and her new-born child beside her, in a kind of grave enclosed by large blocks of chalk. Her only 'jewelry' consisted of two pieces of chalk bored through near one end so as to be worn as pendants, while two fossil sea-urchins, with their cruciform markings, were included in the grave, perhaps to act as charms.

Just across the entrance-causeway, in the next segment of the same ditch, we came across the skeleton of another young woman lying in the dark band of the occupation layer. It looked as if she had been flung into the ditch with the other refuse, for she was lying there, half on her face, with one arm thrown out behind her and her knees doubled up, with no sort of prepared grave or any token of care or esteem.¹ No thoughtful student can view such pathetic remains without some sense of pity, for our object is to use the dead relics of the past to reconstruct its life, and it is evident that the wastage of young life in those savage times must have been appalling. Even in a stretch of 65 feet of this ditch we found part or the whole of no fewer than eight individuals, ranging in age from infancy to not more than twenty-five or thirty years. The two women whose complete skeletons were found were between twenty and thirty years old at death, and both were only about 4 feet 9 inches in height, and slim in proportion. They belong to that race of small people with long and relatively narrow heads which we are accustomed to associate with our Neolithic period, and inasmuch as people with similar bony dimensions exist among the present population of Western Europe, having dark hair and complexion, it has been very generally assumed that our Neolithic predecessors were also dark as well as *petite*. This subject, however, is undergoing re-examination

¹ These skeletons are exhibited in the Brighton Museum, arranged in the attitudes in which they were found.

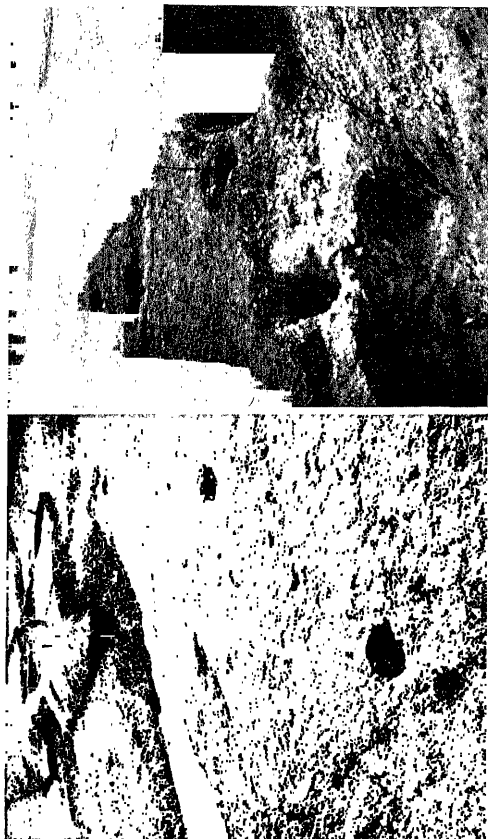


PLATE III.—EXCAVATIONS IN WHITEHAWK CAMP

Left: Palisade post-holes and inner ditch (full of water)

Right: Causeway on third ditch, with gate-post-holes (taken by moonlight)

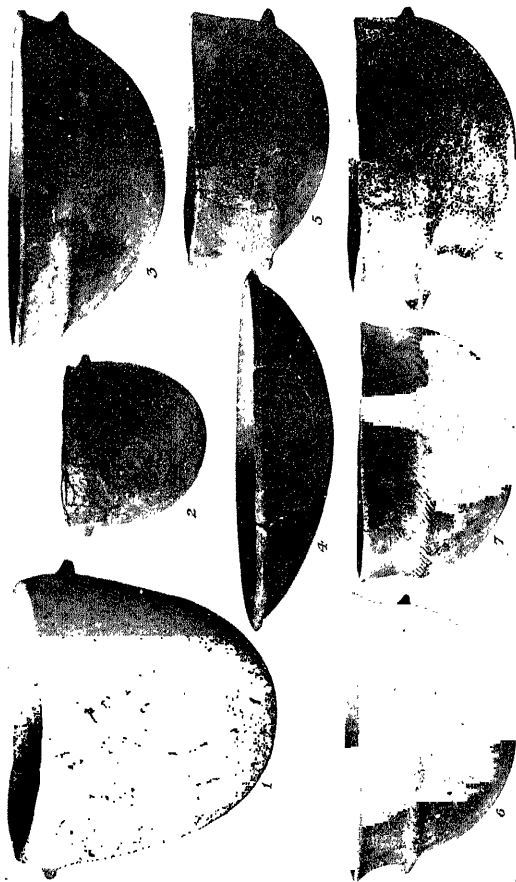


PLATE IV.—NEOLITHIC POTTERY (1)
 1, 2, Type A1, the Trundle (L.M.); 4-8, Type A2, Whitehawk (B'ton M. and L.M.)

by anthropologists in order to check the conclusions of the nineteenth century in the light of more recent knowledge.¹

Reference has already been made to the fact that the piece of the third ditch examined in 1932-3 was interrupted by two causeways of solid chalk, and that it was in the ditch between them that our alleged cannibal cooked his meals. One of these causeways was an original entrance to the area enclosed by the third ditch, for we found the holes in which the gate-posts had been set up and behind them three other holes marking a passage through the rampart; the other causeway, lacking such post-holes, did not, it seems, lead to a gate. This is the first time that the post-holes of the gate of a causewayed camp have been found in England, though they have been found in similar camps in Germany. A good photographic record of these holes was therefore a matter of some importance, but as the excavation was done in mid-winter it was found that the pale winter sunlight was quite inadequate to illuminate them properly. Just at this time the full moon was sailing high in a clear and frosty sky, at an altitude similar to that of the mid-summer sun, so that it was possible to obtain a fairly good photograph of the post-holes, taken with a suitable exposure by moonlight (plate III, *right*). The result is at any rate very much better than any of the views taken by daylight.²

Wherever we examined the ramparts we found evidence of a single line of post-holes dug into their substance, but seldom penetrating through to the undisturbed chalk (plate III, *left*). It looks as if these may mark wooden fences or breastworks which crowned the ramparts, and it may be that only those posts which were more deeply bedded than others penetrated to the bases of the ramparts which alone have survived in the areas which we examined. This is the first evidence of timber palisades in any British Neolithic camp. The ramparts themselves were formed of chalk rubble that had been concreted into a solid mass by grouting with chalk mud. Without

¹ In the 1935 excavations two other human skeletons came to light—an adult male, buried in the surface soil between the two inner ditches, and a child, referred to below.

² *Antiquity*, vii (1933), pp. 476-7.

this the palisade would have had no stability, and would have easily been pushed over. A line of four post-holes was also found marking what appears to have been one side-wall of an entrance-passage through the fourth rampart, just outside the new stables of the race-course. If traces of the other side-wall ever existed they were probably destroyed when the stables were built.

A deep hole on the edge of a causeway of the third ditch, near the stables, may have been intended to hold a tall pole—not a gate-post, because it has no fellow. In the upper part of the filling lay the skeleton of a little child, and one suspects that this may have been a sacrifice buried at the foot of a wooden pillar.

Why did our Neolithic camps have so many causeways interrupting the ditches? That they were not all entrances is evident from what has already been said; moreover, where the ramparts are fairly well preserved both here and at similar camps elsewhere, one may observe that not all the causeways have corresponding gaps in the rampart. Where such gaps exist there may have been an original entrance, but it seems obvious that where there is no gap there is not likely to have been a way in, even if there is a definite causeway. Again, in the inner ditch at *Whitchawk* a causeway was found barely 2 feet wide. One may perhaps infer that many such causeways were not made so by design, but were merely the unexcavated portions left between the pits opened by separate working-parties to obtain chalk with which to build the rampart. If this be so, then our so-called ditches were not primarily intended as part of the defences, but rather as quarries, and this again suggests that the builders of the camp may have been more familiar with stone walls before they came to the chalk country, for they appear to have been trying to build such a wall with chalk and timber. The ancient cities of the Near East, which were presumably the prototypes of our Neolithic camps, were fenced with stone walls and not by ditches and ramparts (except in the case of the Hyksos in Palestine). Such walls could be built of blocks found on the surface, but when the idea was transplanted to a stoneless country the wall would have to be built of material excavated from quarries in front of it. The leaving of numerous unnecessary causeways between these quarry-ditches

seems to show that the defensive advantages of the latter had not yet been appreciated, and it was left for later peoples in Western Europe to develop the idea of the continuous ditch as an additional defence, interrupted only at the entrances. It was not till Norman times that even the entrance-causeways were eliminated for greater security, and replaced by draw-bridges.

On the evidence at present available we cannot yet say how many genuine entrances our Neolithic camps may have possessed. In Germany two of the biggest examples, those of Mayen and Urmitz, seem to have had very numerous gates, the former seventeen, and the latter twenty-two. Why so many? We might answer in the words of Homer when he sang of the Egyptian Thebes as having 'a hundred gates from each of which sally forth two hundred men'—in other words, that the arrangement was designed to enable the occupants, if besieged, to make sallies at any point, or at all points simultaneously;¹ but it seems to us much more probable that, as these camps were the head-quarters of a pastoral people, the numerous entrances may have been intended to facilitate the driving of the flocks and herds into the enclosure reserved for them.

The excavations of 1932-3 revealed that in the case of the third line of defence a shallower ditch, with only one causeway in the stretch examined, preceded the deeper ditch which we have been describing. This may represent an earlier phase in the history of the site.

The fourth or outer ditch yielded very little pottery and no evidence of occupation. Being the external defence it had been left to silt up in the normal manner, and subsequently efforts had been made to level it in. The only feature of interest was a platform of chalk jutting out into the middle of the ditch, and on this platform a hole which resembled a post-hole, though it contained the dismembered skeleton of a roe-deer together with a large number of snail-shells. The carcass of the deer seems to have been crammed into the hole for some purpose, and its careful disposal contrasts with the casual treatment of the young woman already described. Can this have been a foundation sacrifice buried at the base of another

¹ *Iliad*, ix, 381-4.

wooden pillar and intended to ensure the safety of the encampment?

Three small pits, containing pottery, animal bones, flints and dark soil, were found in the areas between the ditches—one in the inner enclosure, one between the second and third ditches, and one between the third and fourth. These have proved to be the only evidence of surface occupation so far, but whether they were cooking-holes or rubbish-holes remains uncertain.

With the exception of a small collection of Early Bronze Age pottery, to be dealt with in a later chapter, the pottery found in Whitehawk Camp is Neolithic A—predominantly A2; that is to say, most of the vessels possessed carinations or shoulders, and the commonest form of decoration is the 'stitch-marking' on rims and shoulders, as already described (plates IV and V). Some shards, however, while resembling A2 in regard to shape and paste, nevertheless exhibit decoration resembling that on B bowls, as pointed out by Professor Stuart Piggot.¹ These devices include 'whipped cord' or 'maggot' patterns arranged herringbone-wise (fig. 14, 2), and multiple impressions made by some blunt object such as a stick or bone. This decorated ware most closely resembles the 'Ebbsfleet' pottery found in Combe Hill Camp (see below, p. 88).

To judge from the distribution of the pottery in the camp, the area of most intense occupation was in the neighbourhood of the two inner ditches. There was some occupation in the third ditch itself, but little or none between the ditches or in the innermost area. From this it seems reasonable to suppose that cattle were penned in the inner ring, while the men lived round them in a circle, and grew their corn in some of the spaces between the other ditches.

Besides pottery the contents of the ditches yielded some rather scanty remains of flint tools and of the flakes struck off in their manufacture. First may be mentioned five pieces of ground and polished flint axes, and two unground specimens, all of rather thick and humpy shape contrasting with the delicate specimens from the Early Bronze Age flint-mines to be described later. Six arrow-heads were found, of which two are delicately worked 'lozenges', three

¹ *Ant. J.*, xiv (1934), pp. 116-19.

are roughly chipped of leaf-shape, and one is a *petit tranchet* or chisel-pointed specimen. Scrapers were fairly frequent, but by far the commonest flint tool was the saw, consisting of a small flake with one or more of its edges notched in such a way as to give it a row of fine teeth, averaging 27 to the inch. Over 200 of these small saws were found, and there is little doubt that they served primarily as knives for cutting anything and everything, the teeth increasing the cutting-power of the sharp edge of the flint, very much as some of our modern bread-knives function better when they are provided with similar serrations. Among other uses these flint saws were employed for cutting wood and bone. The marks of their teeth can be seen on the base of a bone phallus from the Trundle, while their use in cutting, or rather notching, wood is shown by the fact that 35.5 per cent of the specimens show a fine line of bright lustre on their teeth, differing from the broad band of diffuse lustre visible on sickle-flints. The narrow band results from prolonged friction against a fairly rigid medium containing silica; wood is such a medium, and in fact similar lustre has been obtained experimentally by cutting wood with flint flakes.¹

No sickle-flakes of any kind have yet been identified in our causewayed camps, although the cultivation of corn on a small scale is attested by the discovery of 'grain-rubbers', or prepared pieces of sandstone used specifically for grinding corn. No actual grain has been preserved here, but it has been found in the contemporary causewayed camp at Hembury in Devon by Miss Dorothy Liddell;² one shard of pottery from Whitchawk, however, bears the impressions of three grains of barley in a fragment of an ear, pressed into the clay when it was soft.³ A grain-rubber consists essentially of two stones: a large lower stone—in this case sarsen, which was once fairly common on the Downs east of Brighton—having its upper surface worked into a more or less saucer-like hollow, fairly smooth and quite shallow; and a smaller piece of similar stone, generally more or less bun-shaped, and of such a size that it can comfortably be held in

¹ *Antiquity*, iv (1930), pp. 184-6; ix (1935), pp. 64-5.

² *Proc. Devon Arch. Explor. Soc.* (1931), pp. 109, 111.

³ E. C. Curwen, *Plough and Pasture* (1946), plate VI, 2, 4.

one hand. The lower surface of this latter has been worked so as to be fairly smooth and slightly convex, and this smaller stone is used for grinding the corn on the lower stone by a process of rubbing, either round and round or backwards and forwards in various directions. In fact this contrivance, which can be seen in use by some African tribes to-day, is a modification of the pestle and mortar designed for dealing with small seeds rather than such large objects as nuts and roots, and in Britain it is only found in those cultures which are known to have practised corn-growing.¹ Its presence at Whitehawk is therefore an indication that the people there grew corn.

No trace has survived in Sussex of the actual plots of ground in which corn was cultivated during the Neolithic or the earlier part of the Bronze Age. It might scarcely be expected that any such traces should survive if it had not been that on the moors in Devon and Cornwall some of the hut villages which may be attributed to a slightly later period have associated with them small plots of ground which are generally outlined with stones and show a slight degree of terracing which is a result of cultivation.² Such plots are generally very small and quite irregular in plan because they were tilled with hoes and digging-sticks previous to the introduction of the plough at a much later period (see Chapter VII). The greatest dimension of one of these plots seldom exceeds 220 feet, and is often less than 100 feet, and their oval or irregular plan is an indication that no plough was used to till them. Such primitive fields have not survived in Sussex, partly because there are few stones to outline their limits, and partly because under conditions of 'nomad agriculture', where plots were cultivated for short periods and then abandoned,³ the terracing produced thereby was not sufficiently marked to remain visible to-day. Moreover, the very widespread and intensive agriculture of the later prehistoric and Roman periods must have destroyed

¹ Professor Gudmund Hatt has pointed out to the author that similar stones have been used by some people to grind wild seeds; in Britain, however, they are only found in the remains of those cultures which have also yielded actual specimens of wheat or barley.

² *Antiquity*, i (1927), pp. 281-5.

³ Cf. Genesis xxvi, 12, 17—Isaac 'sowed in that land, and found in the same year an hundredfold, and . . . departed thence'.

many of the earlier traces, if they ever existed. Such, however, is the picture of the agriculture likely to have been practised by the inhabitants of Whitehawk Camp.

There was very little grass-land in Western Europe when the first farmers arrived. The heavier soils were covered with dense oak-forests, and the lighter soils with scrub and trees of various kinds. When, therefore, ground was broken up for cultivation, the trees and bushes would first have to be cleared by felling and burning, and then the soft leaf-mould of the clearing would be easily loosened by the flint hoes.

The main business of life was the rearing of cattle, sheep, goats, and pigs; the cultivation of corn was merely an adjunct. The bones of these animals are very abundant in the ditches, especially those of the ox which was fairly small, with long horns and wide forehead—a breed quite distinct from that of the Early Iron Age which had short horns and a narrow forehead. All the bones had been broken across and split in order to extract the marrow for food. Pigs are the next most abundant domestic animal, while sheep and goats are much less common. Only one piece of the lower jaw of a dog was found, and no trace at all of the horse; in fact it does not appear that the horse was known to the Neolithic A people. The Palaeolithic wild horse had long ago disappeared, and its domesticated cousin only returned, it seems, at the beginning of the Bronze Age. Of wild animals only red-deer and roe-deer are represented, including a complete skeleton of the latter.

Among the miscellaneous remains in the ditches were pointed bone tools which were apparently used in decorating the pottery, and a curious kind of comb fashioned out of a red-deer's antler. The purpose of the latter is not known, but a very similar implement is used to-day by the Esquimaux for combing the hair on deer-skins. There were also small cups carved out of chalk and possibly used as lamps. Other pieces of chalk appear to have been used as weights, for they have had holes bored through them. If these were loom-weights, which seems likely, they provide the only suggestive evidence that these people knew the art of weaving; it was certainly known to their contemporaries in the Swiss lake-villages. One

very large block of chalk with a hole cut through one end, weighed 32 lb.

To sum up: Whitehawk Camp appears to have been the permanent head-quarters of a tribe of Neolithic A people who were probably semi-nomadic herdsmen practising a little agriculture. They may have been cannibals, though they fed very largely on the ox, and they buried their dead with a minimum of ceremony in any convenient corner, or even threw them out with the rubbish.

(2) *The Trundle, Goodwood* (plate VI and fig. 16) (41/878110)

Let us now briefly consider the second causewayed camp which has been excavated in Sussex, namely, the earlier settlement at the Trundle, overlooking the Goodwood Race-course, four miles north of Chichester. Visitors to the Trundle Hill will be perfectly familiar with the great rampart and ditch which surrounds the top of the hill like a great ring, hoop or 'trundle' (hence the name). Let us make it clear from the start that this rampart has nothing whatever to do with the present subject, for it is the wall of a much later hill-fort of the Early Iron Age, and as such will find a place in a later chapter. For the moment we are concerned only with some much fainter and less spectacular rings which the casual visitor never sees, and which, it must be confessed, had escaped the eye of the author until attention was drawn to them by an air-photograph taken in 1925 (plate VI). This earlier settlement, which we may distinguish as 'Trundle I', proved to be a Neolithic causewayed camp which was partly overlaid and damaged by the later Iron Age hill-fort ('Trundle II') to which the great rampart belongs.

The Neolithic settlement probably had three ditches: (1) an inner ring enclosing 3 acres, and having a rampart that still stands 7 feet high on the north; the main entrance was on the south-west, with what look like three smaller gates on the east and north-east; (2) an outer ring, of which only a loop survives on the north side of the hill, the remainder having presumably been overlaid and obliterated by the Iron Age rampart of Trundle II; this would have enclosed about 18 acres; and (3) a curious string of pits arranged spirally between the inner and outer rings, in such a way that any one who

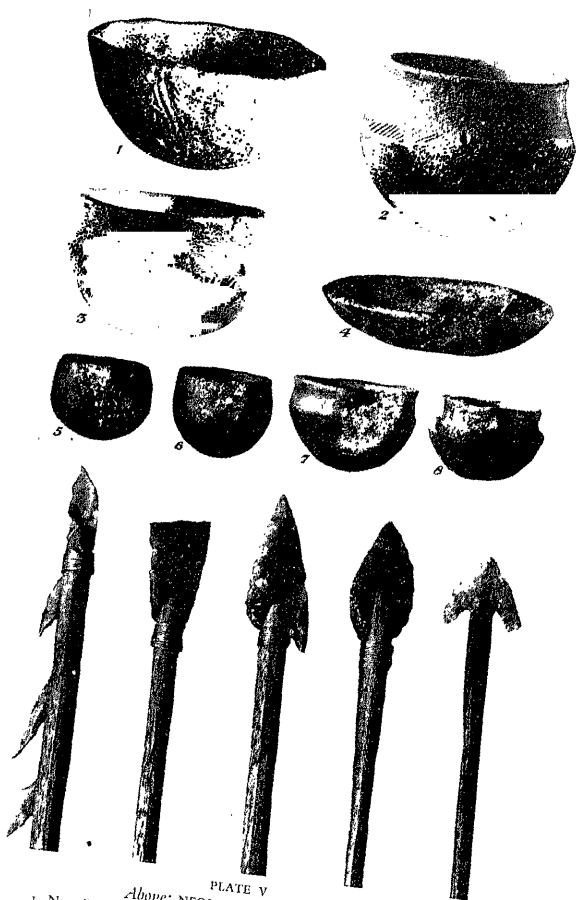


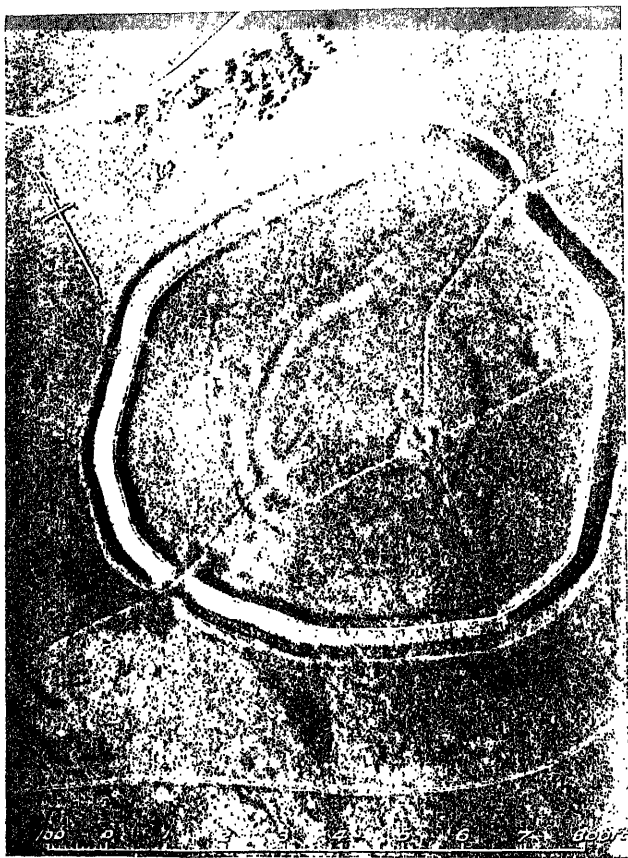
PLATE V

Above: NEOLITHIC POTTERY ($\frac{1}{2}$)

1, New Barn Down (W.M.); 2-8, Whitehawk (H'ton M. and L.M.)

Below: HOW MICROLITHS AND FLINT ARROW-HEADS MAY HAVE BEEN MOUNTED

Left to right: microliths, *petit tranchet*, one-barbed, leaf-shaped and barbed-and-ranged arrow-heads (models in Lewes M.)



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PLATE VI.—AIR-PHOTOGRAPH OF THE TRUNDLE, GOODWOOD, SHOWING THE BOLD IRON AGE RAMPART, AND THE FAINT INNER NEOLITHIC RING

entered the open end of the spiral would be guided towards the main entrance to the inner ring.

Excavations were carried out here by the writer and a number of friends in 1928 and 1930.¹ These showed that the inner ditch, as

— THE TRUNDLE. —

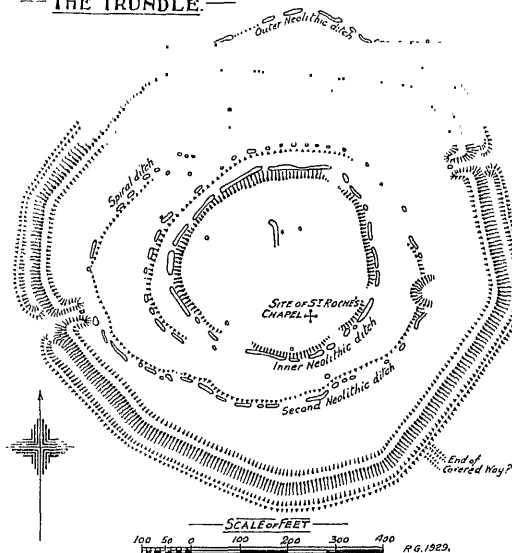


FIG. 16.—PLAN OF THE TRUNDLE, GOODWOOD, SHOWING IRON AGE RAMPARTS AND NEOLITHIC DITCHES

Survey by E.C.C.

originally dug, was about 4 to 5 feet in depth, while the outer ditch was much more considerable, being about 9 feet deep in the one place at which we examined it. The inner ditch yielded Neolithic pottery and other objects. The second or spiral ditch, however,

¹ S.A.C., lxx (1929), pp. 32-85; lxxii (1931), pp. 100-49.

seems not to have been a defensive ditch so much as a string of pits, placed end to end, with shallow post-holes ranged at intervals round the lips. These post-holes may, however, belong to the later (Iron Age) occupation of the site, so that the theory previously advanced, that these pits may have been roofed over as dwellings, must be abandoned. If we regard the inner ring as a cattle-enclosure, and the spiral line as a kind of funnel to facilitate collecting the beasts into their enclosure, the whole complex being surrounded and defended by the deep outer ditch, then the position becomes intelligible. As at Whitehawk the inhabitants may have occupied the zone round the inner ring, for this is where most of the pottery was found. In fact, a very close parallel could be adduced from the habits of certain present-day Moorish tribesmen who pitch their tents in a circle within which the cattle are kraaled, the intervals between the tents being blocked up with thorny brush-wood.¹

The pottery found in this settlement is exclusively Neolithic A, and inasmuch as carinations are almost entirely absent we must regard it as predominantly A1 (plate IV, 1, 2), though a good many pieces have the characteristic stitch-marking of A2 pottery. In a few the decoration goes a little further and is suggestive of Ebbsfleet ware.

The discovery of a neatly carved bone phallus offers the only hint as to the religion of the Neolithic occupants of the Trundle, for it indicates that they shared in the universal observance of fertility cults which have been found in most parts of the world from very early times down to the present day. Similar objects carved in chalk have been found in other Neolithic sites in Britain, notably at the famous causewayed camp at Windmill Hill, Avebury (Wilts.).² The Trundle specimen is specially interesting, not only because it is unique in being made of bone, but because it shows clearly the marks of a flint saw by which it has been severed by nicking all round and then snapping off.

The flint-work is poor and scarce, but consists of the same general types as occurred at Whitehawk. Serrated flakes, or saws, numbered

¹ *Nat. Geog. Mag.*, lxi (1932), p. 279; *Antiquity*, vii (1933), p. 345 and plate.

² Others from a long barrow on Thickthorn Down, Dorset, are illustrated in *P.P.S.* (July 1936), pp. 86-7.

81, of which 30—or 37 per cent—show the narrow band of lustre which results from nicking wood. Only one roughly shaped axe was found, and two pieces of beautifully worked leaf-arrow-heads. Scrapers and a few miscellaneous worked flints complete the catalogue. Bone awls, grain-rubbers and curiously shaped objects of chalk, including cups and weights, occurred as at Whitehawk. Of the latter, one deserves particular mention, for it appears to be the half of a biggish piece of chalk that has had a large hole bored through the middle, from the edge of which radiating lines have been scratched with a sharp flint. What its use can have been would be difficult to guess.

What was said with regard to the animal bones found at Whitehawk applies here also in every detail. The only human remains found are probably slightly later than the Neolithic occupation, for they consist of the skeleton of a young woman who had been buried in the silt filling the outer ditch after the latter had silted up; the interment, however, had been covered by part of the material forming the Iron Age rampart, so that it clearly antedates the latter. The young woman was of the same physical type and small size as those found at Whitehawk, and she was buried in a similarly contracted attitude under a pile of chalk blocks, so that it seems probable that she lived not long after the close of the Neolithic period and certainly before cremation came in with the Middle Bronze Age.

(3) *Combe Hill Camp, near Eastbourne* (fig. 17) (51/574022)

The third causewayed camp to be examined by excavation in Sussex is on Combe Hill, three and a half miles north-west of Eastbourne pier. The hill (638 feet O.D.) forms a kind of corner bastion where the north escarpment of the Downs turns south towards Beachy Head, and it no doubt derives its name from a conspicuously steep-sided coombe which cuts into its northern face. The camp consists of an oval ring of interrupted ditches and bank, deficient for 200 feet along the brow of the steep northern declivity, and enclosing rather less than $1\frac{1}{2}$ acres; there is also an interrupted outlier on the west, and traces of another on the east and south-east (fig. 17). In each case the bank is remarkable in being interrupted almost as

frequently as the ditch, which is unusual, even in Neolithic camps, the bank of the inner ring having at least seven gaps, all apparently original.

Excavation was carried out here by Mr. Reginald Musson for the Eastbourne Natural History and Archaeological Society in 1949.¹ Work was concentrated on a small area in the middle of the west side of the inner ring, the ditch on both sides of a causeway being examined, and the causeway and adjacent bank explored for post-

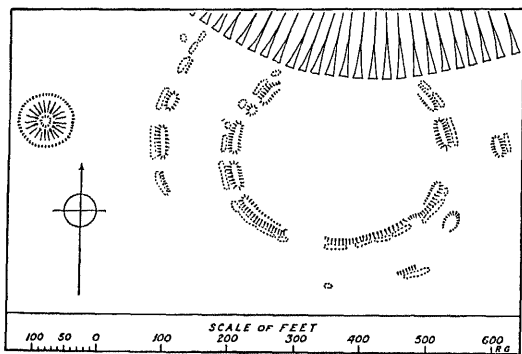


FIG. 17.—NEOLITHIC CAMP, COMBE HILL, JEVINGTON, NEAR EASTBOURNE
Survey by E.C.C.

holes without finding any. The ditch south of the causeway yielded nearly 1,000 sherds of Ebbsfleet ware, which, as we have already noted, Professor Piggott regards as an early and undeveloped form of Neolithic B. The complete absence of Neolithic A pottery from this site is as remarkable as it was unexpected. Other finds included a leaf-shaped flint arrow-head, a flint scraper and some 400 flakes, as well as grain-rubbers (an upper stone and part of a lower), a few ox-bones and a pig's tooth, and charcoal from hazel, hawthorn and ash.

Thus Combe Hill focuses attention on the problem of the inter-relationship of the different kinds of Neolithic pottery and their

¹ *S.A.C.*, lxxxix (1950), p. 105.

relationship to the causewayed camp complex as a whole—a problem no doubt dependent on that of the different parts played by native and newcomer under the new economy.

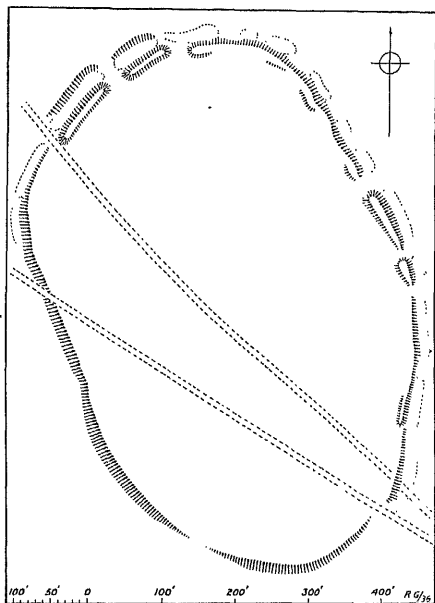


FIG. 18.—BARKHALE CAMP, BIGNOR HILL
Survey by E.C.C. and G. P. Burstow

(4) *Barkhale Camp, Bignor Hill* (fig. 18) (41/975126)

This small oval camp, surrounded by a single interrupted ditch, was discovered by Professor J. A. Ryle, but has since been ploughed out. A trial trench dug by Professor Ryle about 1930 yielded no finds.

CLIMATE AND TREES

Having thus outlined the principal individual features of these three causewayed camps, we may now proceed to consider collectively the evidence they afford regarding the climate of the period of occupation and the character of the local trees. Evidence of climate is afforded by collecting snail-shells from datable levels, as has already been shown. No fewer than twenty-seven species of snails have been identified by Mr. A. S. Kennard, A.L.S., most of which are common to the Neolithic ditches of these camps. Some of these snails, such as *Arianta arbustorum* and *Acme lineata*, will only live in damp situations, and the former is found nowadays only in valleys with permanent streams, or at the foot of the chalk escarpments. The large size of the Neolithic examples indicates that they were able to get all the water that they needed, and the conclusion drawn, not only from these collections, but also from those from all other excavations in contemporary downland sites in southern England, is that in the Neolithic period conditions were very damp, the water-table in the chalk was much higher than it is at present, and the chalk Downs were at least partially covered with a scrub of trees and bushes.

The significance of the raised water-table lies in the fact that under such conditions springs would most probably be found in many valleys that are now dry, so that water would be available at no great distance, not only for the flocks and herds, but for the occupants of the hill-top settlements concerned.

The surprising thing is that there should be evidence of so much dampness in Sussex during a period—the sub-Boreal climatic phase—which is known from evidence elsewhere to have been warm and relatively dry, with prevailing easterly winds. In part this might be explained by greater afforestation and lack of drainage of the low ground, but C. E. P. Brooks has pointed out that, to produce the sub-Boreal type of climate, the belt of barometric depressions, which now lies mostly to the north of the British Isles, must then have lain to the south of them. In such conditions the rainfall would be

heaviest over southern England and the eastern slopes of the English hills.¹

The local trees are revealed by the charcoal found in the hearths and ditches, for charcoal does not decay, but preserves the characteristics of the wood from which it has been derived. The following trees have been identified by Mr. J. Cecil Maby, B.Sc.: alder, ash, hazel, birch, *Pyrus* (crab-apple or white beam), oak, hawthorn, horse-chestnut (?), box, *Prunus* (sloe?), buckthorn (?), elm, guelder, hornbeam, yew, gorse, poplar, willow and lime (?). These provide plenty of material for downland scrub, and to a large extent they resemble the present local trees. The complete absence of beech—the glory of Goodwood to-day—is noteworthy, as is also the presence of yew at Whitehawk, for yew, though very common in West Sussex, is almost unknown on the East Sussex Downs, except in Stammer Park where it is not likely to be native. Even more striking is the occurrence of poplar and willow at the Trundle, indicating that those trees—and therefore water²—must have been found reasonably near to the site. This evidence, therefore, confirms that of the snails regarding the probability that springs may have been forthcoming in adjacent valleys.

THE LONG BARROWS

Discoveries in the ditches of the causewayed camps have, as has been shown, thrown some light on the casual methods of disposal of the undistinguished dead. But for the chiefs and great men some sort of funerary pomp was a definite feature of the Neolithic period, and this took the form of large elongated burial mounds of chalk within which the deceased—generally more than one—were interred without being burnt. Twelve such 'long barrows' have been located in Sussex—a feeble quota compared with the 150-odd examples listed as occurring in the neighbouring counties of Hampshire, Wiltshire,

¹ *Antiquity*, i. (1927), p. 417.

² The author has, however, found two willow-trees among thorn-scrub on Plumpton Plain—a waterless chalk ridge near Brighton—at a height between 500 and 600 feet O.D.

Dorset and Somerset.¹ Not only are they scanty in numbers but they are also, on the whole, smaller in size than those of Wessex. Our largest examples, those of Fernbeds, near Up Marden, in the west, and Wilmington Hill, near Eastbourne, in the east, measure from 210 to 220 feet in length by 60 to 70 feet in breadth, and stand about 6 feet high. At the other end of the scale come diminutive and more or less oval specimens, such as those at Stoughton in the west, and at Alfriston and Litlington in the east, which may be as little as 75 feet long by 45 feet broad and 4 feet high. The mounds themselves had, as a rule, a ditch along either flank; this ditch did not always continue round the ends, or if it did, sometimes a causeway was left across it. Often one end of the barrow is higher and wider than the other; in four of the Sussex examples this is the east end, while in the remaining eight the higher end faces almost any point of the compass.

The long barrows of Sussex have been listed with all their known details by Mr. L. V. Grinsell,² so that there is no need to do more here than to draw attention to their general features. They are only found on the chalk where they lie in conspicuous positions on the rounded backs of hills or on gently falling spurs—never in the valleys. They fall into two separate groups as regards their distribution: the larger group of nine³ examples lies on the eastern Downs between Brighton and Eastbourne, that is, between the causewayed camps of Whitehawk and Combe Hill; the smaller group of three is found in the extreme west, in the neighbourhood of the causewayed camp at the Trundle. Between the Trundle and Whitehawk—a distance of twenty-eight miles as the crow flies—there are neither long barrows nor any other works of Neolithic man except the small

¹ *Map of Neolithic Wessex*, Ordnance Survey, 1932.

² *S.A.C.*, lxxv (1934), pp. 218–21; and see also H. S. Toms in *S.A.C.*, lxiii (1922), pp. 157–65; E. and E. C. Curwen in *S.A.C.*, lxvi (1925), pp. 172–5; O. G. S. Crawford, *Ordnance Survey Profess. Papers*, N.S., No. 8, part 2.

³ Or ten, if we include the possible example that once stood in Brighton, at the point of junction of Preston Drove and Havelock Road. It seems to have had a ditch on each flank, and to have measured 260 by 35 feet, and 8 to 10 feet high. When destroyed in 1891–2 many human bones were found (*S.N.Q.*, vii (1938), p. 73).

Barkhale Camp and some of the flint-mines. This association of the long barrows with the causewayed camps is very suggestive that the former should be attributed to the 'A' rather than to the 'B' folk, and this is borne out by the observation that the distribution of long barrows in England as a whole corresponds closely to that of the Neolithic 'A' pottery, and by the fact that, in the few instances where long barrows have been scientifically excavated, pottery of A type has been found in such positions as to indicate an intimate connexion with the builders of the barrows in question.

Unfortunately none of the Sussex examples has yet been submitted to scientific excavation, though most of them appear to have been dug into at some time or another. We cannot therefore tell what relation, if any, our long barrows may have borne to the great megalithic movement that reached Britain by the Atlantic trade-route. This movement introduced to Britain about this time the habit of erecting great stone burial chambers which served as mausoleums in which communal or perhaps successive burials were placed, after the manner of our family vaults. The stone structure was erected on the surface of the ground¹ and then covered over with a mound, which in the Atlantic districts was normally circular in plan. In Wessex, however, and particularly in the Cotswolds, burial chambers of this kind are found within typical long barrows, while in Lincolnshire, where suitable stone is not available, recent excavation by Mr. C. W. Phillips, F.S.A., has shown that in one long barrow, at any rate, the internal arrangements were made of wood, following the same general plan as some of the stone examples on the Cotswolds. The long barrow itself appears to have been a development within this country, and particularly in Wessex, since it is not found on the Continent, at any rate in its typically British form. The megalithic idea, therefore, widely spread across the western coasts of Europe is one thing, while the long barrow is another; and while the two overlap, as in the Cotswolds, they are not necessarily related.² The Sussex group of long barrows, lying

¹ In those cases in which the earth has since been removed, the burial chamber, thereby exposed, is familiar to many as a 'dolmen', but these do not occur in Sussex.

² *P.P.S.*, i (1935), pp. 115-26; iii (1937), p. 173.

nearest to the Continental sources of the Neolithic A culture to which they appear to belong, and farther from the western megalithic area, may therefore hold the key to this problem, though we must remember that Kent possesses megaliths which may be related to those of Denmark and Holland. The whole problem is still in a very nebulous state and is likely to remain so until more excavation is done in our long barrows, but as this is one of the most costly and laborious operations, and one that requires the greatest skill and discrimination, it must not be lightly undertaken.

THE HASSOCKS SPOONS (fig. 19)

Before closing the present chapter mention must be made of examples of a class of object which is referable to the Neolithic period, viz. spoons made of clay. Round about 1900 a pair of such spoons was scratched out of the edge of a disused sand-pit near

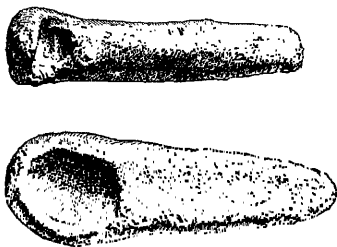


FIG. 19.—NEOLITHIC CLAY SPOONS, HASSOCKS (B.M.) ($\frac{1}{2}$)
(*Antiquaries' Journal*)

Hassocks, the find being subsequently recorded by the late Mr. J. E. Couchman, F.S.A.¹ No associated objects were discovered at the time or later, but it is believed that they came from a rectangular grave. The date to be attributed to them must therefore depend upon

¹ *P.S.A.*, xxxi (1919), p. 109; *S.A.C.*, lxi (1920), pp. 65-73; see also *Arch. J.*, lxxxviii (1931), p. 77; *Ant. J.*, xiv (1934), pp. 422-3. The originals are in the British Museum, but good replicas may be seen at the Lewes Museum.

a study of the type as a whole, rather than upon the circumstances in which these individual specimens were discovered. The larger specimen, which is $4\frac{1}{2}$ inches long, has its bowl in the same plane as the handle; in the smaller the bowl joins the handle at an angle, as in a ladle.

Spoons of this kind, but of varying shapes, have been found in various parts of the Continent, between Spain and Asia Minor, and a few in Holland, Denmark and Slesvig, but the largest numbers have occurred in two places in France, viz. the Camp de Chassey (Saône-et-Loire), and the Cave of Spoons at the Grotte de Nermont at St. More. All these specimens are associated with Neolithic levels, and it is of special interest to note that two examples were found in the remains of the second city of Troy, which was the great trading centre of the Near East, and seems to have played an important part in the spread of Neolithic culture into Europe.

Another pair of similar spoons comes from the mound of a long barrow at Nether Swell in Gloucestershire,¹ which emphasizes the peculiarity that these objects are so often found in pairs. Mr. Couchman cites a parallel in the observation that of eighteen bronze spoons belonging to the Iron Age and found in Britain, no less than fourteen were found in pairs.

¹ *Ant. J.*, vii (1927), p. 61 and pl. xvi. Single specimens have also been found at Niton, I. of W. (*Proc. I.O.W. Nat. Hist. and Arch. Soc.*, 1932, p. 199), and Ightham, Kent (*P.P.S.*, 1935, pp. 150-1).

Chapter VI

FLINT-WORK

Make thee knives of flint.—*Joshua* ¹

AT this point it becomes necessary to depart slightly from the strict chronological sequence, in order to deal with an important feature which is to a large extent common to the Neolithic period and to the earlier part of the Bronze Age that succeeded it. It will be more convenient to deal with it at this stage, even if we have to advise the reader who is a beginner to refer forward to Chapter VII for the elucidation or more complete understanding of allusions to the Bronze Age in the present chapter.

We have already emphasized the view that the method of life of the Neolithic and Early Bronze Ages was essentially homogeneous, in which the rearing of cattle played the chief part, while corn-growing and hunting took subsidiary places. The introduction of the metal bronze as a material for tools and weapons was so gradual that for a long while, at any rate, the knowledge of it made very little difference to the life of the people, owing to its scarcity. During, therefore, the Early and perhaps also the Middle Bronze Age, as well as the Neolithic period, flint remained the principal hard material for the manufacture of tools and weapons, as, indeed, it had always been since man's first appearance on the earth. For this reason the flint industries of these periods—say, from about 2500 to 1000 B.C.—must be considered together as a whole, allocating, wherever possible, particular types of flints to more narrowly defined periods.

THE FLINT-MINES

Our study naturally begins with the flint-mines for which the county is well known. No fewer than seven flint-mining sites have

¹ Revised Version.

been provisionally identified on the Downs, five of which have been proved to be so by excavation. These five are at Cissbury,¹ Harrow Hill,² Blackpatch Hill,³ Church Hill (Findon),⁴ and Stoke Down,⁵ while the two remaining sites which are as yet unproved are at the Lavant 'caves'⁶ and Windover Hill.⁷ The seven sites are distributed in three groups—a western group of two near Chichester, a central group of four near Worthing, and a single unproved site in the east near Eastbourne. What the significance of this distribution may be has yet to be seen.⁸

The art of mining for flints seems to have been introduced to Britain from the Continent, along with the other elements of Neolithic culture, though some believe that at the famous site of Grimes, Graves in Norfolk the oldest pits go back to an earlier period. Of this, however, we have no evidence in the Sussex mines, but we seem rather to see the influence of a Continental Neolithic technique which reached its highest point at the famous mines at Spiennes, near Mons in Belgium. The practice of flint-mining resulted from the realization that the best flint for manufacturing axes on a large scale is to be found in nearly horizontal seams of nodules in the chalk. Flint that has been exposed for long periods on the surface is believed to be tougher and less workable. As to how

¹ *Arch.*, xlii (1869), pp. 53-96; xlv (1872), pp. 337-48; *Proc. Brighton and Sussex Nat. Hist. Soc.*, xxii (1875), pp. 24-46; *J.R.A.I.*, v (1876), pp. 357-90; vi (1877), pp. 20, 263, 430; vii (1878), p. 412; viii (1879), p. 377; xxxiii, p. 296; *Proc. Brit. Ass.* (1877), p. 117; *Arch.*, lxi (1912), pp. 109-58.

² *S.A.C.*, lxvii (1926), pp. 103-38; lxviii, p. 273; lxxviii (1937), p. 230.

³ *Ibid.*, lxxv (1924), pp. 69-111; J. H. Pull, *The Flint Miners of Blackpatch* (London, 1932).

⁴ *S.C.M.*, vii (1933), pp. 810-14; xxvii (1953), p. 15.

⁵ *P.P.S.E.A.*, iv (1923), pp. 82-91.

⁶ *Antiquary*, xxviii (1893), pp. 22, 160; *S.A.C.*, lviii (1916), pp. 68-74; *S.N.Q.*, ii (1928), p. 81.

⁷ *S.A.C.*, lxix (1928), pp. 95-7.

⁸ The pits on the south-eastern spur of Bow Hill, near Chichester (*S.N.Q.*, iv (1933), p. 246) and those near Tolmere Pond, Findon (*S.N.Q.*, i (1927), p. 168), though superficially resembling flint-mines, have not proved to be such on trial excavation. Though apparently prehistoric, their purpose remains doubtful.

the discovery was made we can only suggest that the seams of flint may have first been found where they outcrop on a cliff or steep hill-side, or even in the sides of the ditches of the causewayed camps. It would be a small matter to dig the nodules out of these situations and even to follow the seams by trenching and tunnelling as far as they dared, and it would be a natural step from this that pits should afterwards be sunk farther up the hill in order to encounter the same vein of flints again.

In discussing individual sites we shall review the evidence for their date, but we may here anticipate conclusions by saying that the flint-mining industry of Sussex was begun during the Neolithic period and continued to flourish during the Early Bronze Age and perhaps even into the Middle Bronze Age. Indeed it seems to have become extinct only when bronze became so plentiful that there was no longer a demand for flint.

A TYPICAL FLINT-MINE

A typical flint-mining site presents the appearance of an area of downland, generally on or near a hill-top or along the flank of a hill, covered thickly with grass-grown mounds and pits, without any cart-tracks leading out of them (plates VII and XXI). This last feature may enable them to be distinguished from more recent chalk quarries which are also commonly situated on hill-tops. The pits, or rather depressions, may vary from a few inches to 12 or 13 feet in depth, and from 10 to 70 feet in diameter. They are never found singly, but packed thickly in clusters of from thirty or forty to over two hundred. These pits are in reality the mouths of shafts that have been filled up with chalk rubble, and if the filling be carefully removed—a laborious and costly proceeding—it is found that the shaft goes down more or less vertically to a depth of 10 to 40 or 50 feet into the hill-side, while from its base tunnels or galleries radiate in all directions, following the seam of flint which it was the object of the miners to reach. In some cases the hill is honeycombed with these workings, the galleries of one shaft communicating with those of neighbouring shafts, so that only pillars and comparatively thin

walls of chalk are left to support the roof. This is well shown in the plan of some of the mines at Cissbury (fig. 22).

Mixed with the material filling the shafts we find various relics left behind by the miners. The fact that the chalk walls of the pits do not usually show any sign of weathering by frost indicates that on being worked out each shaft was immediately filled up with chalk or other soil which was presumably derived from the opening of a new pit in the vicinity. Thus all the relics found in the filling, except those in the uppermost 2 or 3 feet, may be taken as belonging to the period of the mines at the latest, while theoretically, at any rate, some of them might be older. The objects so found comprise (1) relics of mining tools, (2) relics of flint-knapping, that is, the manufacture of flint axes, and more rarely (3) domestic refuse and human remains. These merit more detailed consideration.

(1) The principal mining tool was a pick made out of a red-deer's antler by trimming off all the tines except the brow tine; the latter served then as the point of the pick, while the beam formed the handle¹ (plate VIII, *inset*). Such a tool was not only the principal means of accomplishing the truly astonishing amount of excavation of shafts and galleries effected by these people without the aid of metal, but it is important as being the prototype of our picks, hoes and mattocks. Some of these picks bear marks of battering on the back of the crown opposite the tine; this may mean that they were sometimes turned round and used as hammers, or else that the tine of the pick was held against the chalk and hammered in with a stone. Marks found on the chalk walls of some of the galleries support the latter view, as we shall see presently. Rarely a pick has been found with the two tines nearest the crown preserved (fig. 20, 1). It has been suggested that such may have been used as rakes. Still more rarely does one find a composite pick or other tool made of more than one piece of antler fitted together, one piece being perforated to contain the other.² Hammers are occasionally found made of antler, and showing much evidence of use (fig. 21, 8).

¹ Some of the antlers had been cut from the heads of slain deer, thus indicating that the miners still practised hunting.

² *Arch.*, xlv, p. 345.

The next most interesting mining tool is the shovel made out of the shoulder-blade of an ox, deer or pig, by chopping off the

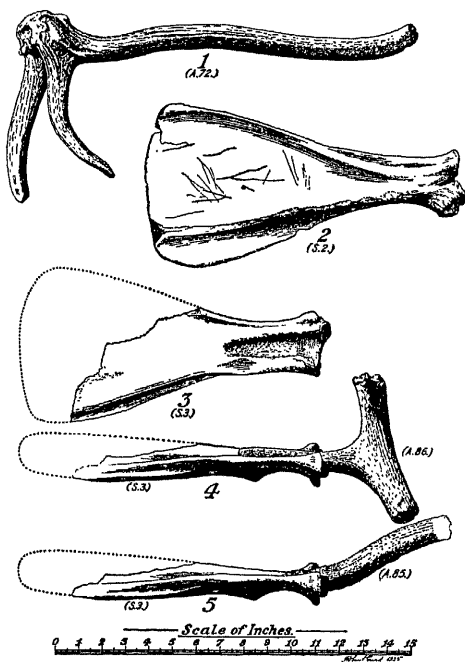


FIG. 20.—MINING TOOLS, HARROW HILL ($\frac{1}{8}$)
1, Antler-rake (?); 2-5, Shoulder-blade shovels, one with handles of antler
(Worthing Archaeological Society)

projecting ridge of bone known as the spine (fig. 20, 2-5). Ernest Willett was the first to describe these tools, for he found examples in his shaft at Cissbury, but other workers there seem to have found

specimens in their shafts also. A unique example was found at Harrow Hill, where the neck of the bone was hollowed out to form

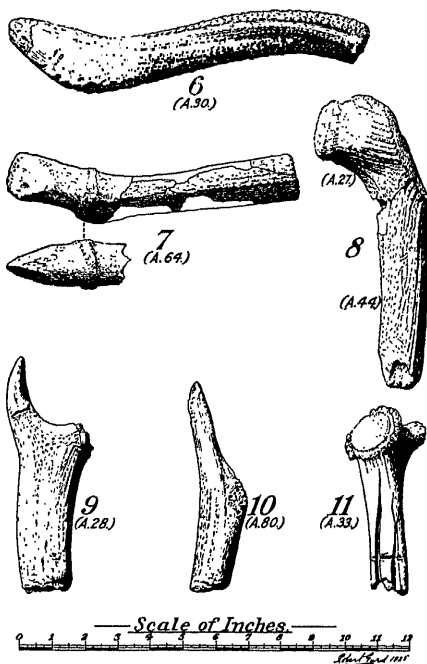


FIG. 21.—TOOLS OF DEER'S ANTLER, HARROW HILL ($\frac{2}{3}$)

6, Handle for shovel ($\frac{2}{3}$); 7, Wedge; 8, Mallet; 9, 10, Pressure-flakers; 11, Broken comb (?)
(Worthing Archaeological Society)

a kind of socket, into which fitted a specially prepared T-shaped handle made of antler. These were found together in a gallery, and with them was found what appears to have been an alternative

handle of antler, nearly straight in form¹ (fig. 20, 3-5). It almost seems that in the confined space of the gallery the miner found it convenient to vary the shape of his handle according to circumstances. It is interesting to note that the occurrence of these shovels is confined to those mines which are believed to be of Neolithic date, no examples having been reported from those for which the evidence suggests a date in the Bronze Age. This type of tool reappears in the Early Iron Age, and the interesting thing about it is that there is a close connexion between the words for 'shovel' and 'shoulder-blade' in very many of the languages of Europe, thus recalling those distant days when the blade-bone was the only shovel that man possessed.²

Detached tines of antler often show the marks made by the flint choppers by which they were severed, but they show no sign of having been used as punches for drilling the chalk. Wedges of antler are occasionally found, which may have been used for this purpose (fig. 21, 7). Flint choppers and wedges abound, but the chalk walls of the galleries show no marks of the use of such tools.

(2) The flint-mining industry appears to have been carried on mainly, if not wholly, for the purpose of manufacturing axes. Hence arrow-heads have not been found in the mines, and scrapers, extremely common on domestic sites, are rare in these workshops. The knapping of flint axes was carried on at the mines, most of it being done in the open air between the mouths of the shafts, where large quantities of flint flakes—the waste products of the industry—have been found closely packed together in 'flaking-floors'. Sometimes the knappers took refuge in the shafts—perhaps in bad weather—and carried on their work there. Just inside the mouth of one of the galleries at Harrow Hill a knapper sat and worked, leaving a pile of flakes behind him, while in the shaft, within a yard of where he had sat, we found the ashes of the fire which he had lighted to keep himself warm. At intervals during the filling up of a worked-out pit a knapper would often take shelter in it, leaving behind him a 'nest' of flakes. With these flakes, or scattered through the filling of the shaft, are numerous flint implements in all stages of manufacture

¹ S.A.C., lxxvii (1926), pp. 111-12.

² *Ibid.*, pp. 139-45.

from rough-out blocks to perfect axes. The latter are, of course, uncommon, but many fairly good tools were discarded because of some flaw in the material or because they were spoilt or broken in the making. At Blackpatch the two halves of an otherwise perfect and delicately worked axe were found about 10 feet apart—eloquent testimony to the feelings of the craftsman who had accidentally broken a masterpiece just as he was completing it. Rough flint choppers are also common—probably rapidly made to meet some passing need, such as the cutting of an antler. Direct evidence has not been found in the shafts as to what was used as a hammer to detach the larger flakes when shaping a rough-out axe, for hammer-stones bearing marks of abrasion are rare. The modern view is that short, thick wooden sticks may have been used for this purpose. But the tiny flakes that result from the final trimming of the completed tool were almost certainly detached by the pressure of a pointed tool of bone or antler, as is the case among some modern tribes. At Harrow Hill two such pressure-flakers of antler were found—tools that were carefully shaped, and that show signs of polishing by friction in the hand of the knapper ¹ (fig. 21, 9, 10).

(3) The mines contain very little domestic refuse of any kind, which shows that they were never inhabited in the ordinary sense of the word. Pottery is extremely rare, but such as has been found is referable to the Neolithic 'A' and Early or Middle Bronze Age, as we shall see presently. Animal bones—apart from those utilized as mining tools—are also not numerous, and include the ox, sheep, goat, pig, dog, red-deer, roe-deer, wild boar, badger and fox. Some of these no doubt represent the remains of food eaten by the miners while at work. It is noteworthy that in no Neolithic deposit in Sussex, whether in causewayed camp or flint-mine, have the bones of the horse been found. It is probable that this animal was introduced in its domesticated form by the 'Beaker-folk' in the Early Bronze Age, or possibly by the Neolithic 'B' people. In Tindall's pit at Cissbury occurred two skulls of the gigantic wild ox—*Bos primigenius*—which contrasts with the smaller domesticated variety which is usually found and which has sometimes erroneously been termed

¹ S.A.C., lxvii, pp. 119, 120-1; lxviii, p. 273.

Bos longifrons. The Neolithic domestic ox was, however, of quite a different breed to the *Bos longifrons* which is universal on Early Iron Age sites.

Burials are occasionally found in or near the mines—by inhumation in the Neolithic pits, and by cremation, with or without urns, in those of the Bronze Age. These will be considered presently.

Other features of interest occasionally met with include curious scratch-markings done with a sharp flint on the walls of the shafts or galleries, or on loose blocks of chalk. These seem to have been noticed mainly, if not exclusively, in the Neolithic mines—Cissbury and Harrow Hill. They sometimes consist of a number of straight, roughly parallel scratches, resembling tally marks, and usually occurring on loose blocks. More complex patterns of straight lines, chess-board and ladder patterns, have been found on the walls near the entrances of galleries, and even some signs were reported at Cissbury which suggested alphabetic or syllabic characters.¹ In every case the discoverers satisfied themselves as to the genuineness of the marks, partly by their colour and condition which contrasted with recently made scratches, and partly by the inaccessibility of their sites to intruders prior to their discovery.

The galleries (plate VIII) generally radiate out from the base of a shaft, though occasionally a pit may be found without them. In length an individual gallery may be anything from 3 to 27 feet, but very frequently it communicates with other galleries from the same or from other shafts so as to form part of an extensive underground labyrinth. They are most commonly about 3 feet high, occasionally rising to 5 feet, and when first explored are found to be choked with chalk blocks and rubble to within a foot or 18 inches of the roof. As far as possible this material is removed by the explorers because it may contain mining tools or may conceal features of interest, but excavation under such conditions is no light task—crouching, squatting or even lying down and shovelling chalk into a basket with a diminutive spade—coaxing, tugging and shoving the basket, which now contains nearly a hundredweight of chalk, back into the shaft, to be hoisted to the surface with a rope and pulley. The hard-

¹ J. Park Harrison in *J.R.A.I.*, vi (1877), pp. 264, 269; 431 ff.

ships are, however, more than counterbalanced by the fascination of exploring these ancient workings which have lain undisturbed for something like four thousand years. The thrill of anticipation as one first enters a gallery and crawls, candle in hand, flat on one's face over angular cobbles of chalk, has been described before but can never be forgotten by one who has experienced it; nor can the thrill of discovery, as each new feature is noticed—the pick-holes on the walls, the soot-marks on the roof from the miner's lamp (plate IX), the ashes of his torch in a corner, his pick lying on the floor, or a broken blade-bone fitted with a handle of antler. Not always is the condition of the roof sound enough to permit exploration with safety; there is no reason to think that pit-props were ever used, but one does sometimes find an opening leading from one gallery into another blocked up with a wall of chalk blocks, and experience taught us that such walls were better left alone: curiosity kills others besides cats, and more than once a fall of the roof occurred at Harrow Hill while we were exploring the galleries, but fortunately without harm.

The arrangement of pick-holes in the walls of the galleries suggested the method by which the antler-picks may have been used. The best example was seen in a gallery at the Blackpatch mines, where the miner had for some reason left his work unfinished. Here we found two roughly parallel rows of holes punched into the natural lines of cleavage of the chalk. Each hole was from 2 to 4 inches in depth and had been made by hammering in the tine of an antler, for the chalk had oozed out round the lip. We have already seen that detached tines show no signs of having been hammered, but that the backs of the picks frequently do, so that one may infer that after hammering the brow-tines of one or more picks into the same fissure, one could by pulling on the handles exert powerful leverage to force out the adjacent mass of chalk. Freshly made antler-picks are quite tough enough to do this without easily breaking. Detached blocks found in the galleries often show the halves of such pick-holes on their edges, thus confirming the view as to the method adopted.

Many of the galleries are not long enough to require artificial

lighting when the shaft is open to the sky, but occasionally this was restored to, for in one long, ramifying gallery at Harrow Hill soot-marks were found on the roof in several places—before any intruders had had a chance of getting in with matches or candles (plate IX, *below*). As to what was used for a lamp one cannot be precise; little collections of ashes may be the relics of torches of some sort. On the other hand, a cup roughly carved out of chalk was found in Tindall's shaft at Cissbury, and another in Pitt Rivers' deepest pit; others have occurred in the causewayed camps, so that they seem to be a regular Neolithic feature,¹ but whether they were intended to be used as oil lamps, with a rush wick standing in fat, is a doubtful point. Such use is quite likely, but in that case one would expect to find them bearing some trace of soot, so that it is important to note that Ernest Willett states that the specimen from Tindall's shaft was actually somewhat blackened at the edges.²

Sometimes a projecting corner of the chalk wall is found to have been rubbed smooth and rounded by the frequent passage of the miner's body. All these little human touches, so living, so undisturbed by time, serve but to annihilate the four thousand years that intervene between ourselves and those contemporaries of Abraham who last entered these galleries before us.

THE CISSBURY FLINT-MINES

(51/137079)

The flint-mines at Cissbury are, next to those known as Grimes' Graves in Norfolk, the most famous site of their kind in Britain, and they seem to have been the first to attract the curiosity of antiquaries. They occupy the western part of the great hill-fort of Cissbury, four miles north of Worthing, forming a hummocky area of pits and mounds, some of which are of very great size (plate XXIII). The number of visible pits has not been estimated, but they probably exceed two hundred, and there is also a line of shafts outside the south entrance of the hill-fort, about thirty-nine in number.

¹ *Antiquity*, vii (1933), p. 172.

² *Arch.*, xlv (1872), p. 346. This specimen is preserved in the British Museum, where recent inspection corroborates Willett's statement.

Much speculation is recorded in the journals of the middle of last century as to the nature and purpose of these pits. They were generally assumed to be contemporary with the hill-fort, and to have been the dwelling-places of its inhabitants, or possibly their water-holes. The most remarkable theory was that of the Rev. Edward Turner, who with the reckless abandon of some of the older antiquaries, and paying no more heed to common sense than to evidence, considered the pits to have been 'dish-barrows, holy consecrated recesses, formed for the especial purpose of forwarding the celebration of the religious ceremonies of the Britons during their sojourn in these hill-forts'.¹

The first to think of applying common sense to the elucidation of the problem was G. V. Irving, who, realizing that books could not help him, determined to see what the ground itself could reveal. In or about 1857, therefore, he opened a few of the pits in the north-west part of the hill-fort, but dug no deeper than a very few feet, and as he took no notice of worked flints he failed to interpret his evidence. Rather, therefore, than admit failure he expressed the opinion that the pits had been constructed as cattle-enclosures—a sad ending to a hopeful quest.² So far as we know, Irving was the first, at any rate in Sussex, to attempt excavation as a means of gaining knowledge as distinct from curios or marketable treasure.

It was left to Lieut.-General Pitt Rivers (then known as Colonel Lane Fox) to discover the real nature of these pits. Though he afterwards became the father of scientific archaeology, and set standards which have been the basis of all modern excavation, he was himself a beginner and a pioneer when he dug in Sussex. He and Canon Greenwell opened about thirty of the pits in 1867-8, but being deceived, as Irving had been, by the hard surface of the chalk filling of the shafts they did no more than clear out the upper 4 feet or so from each pit. In spite of this mistake Pitt Rivers noticed the large numbers of worked flints and flakes and inferred that the pits had been dug to obtain flint for the manufacture of implements.³ He therefore attempted to classify the implements he found, on the

¹ S.A.C., iii (1850), p. 181.

² J.B.A.A., xiii (1857), pp. 274-94.

³ Arch., xlii (1869), pp. 53-74.

basis of dividing them into two classes, viz. those made from flakes and those made from cores from which flakes had been struck. This basis has since been usefully applied to other flint industries, especially those of the Palaeolithic period. Axes were core-implements and form the bulk of the material, but one of Pitt Rivers' flake-implements deserves special notice. It is a flint sickle-blade of what one may call sub-crescentic form—a type which we shall consider presently; it must be noted that it is described as possessing 'glaze', that is, without doubt the gloss which results from the prolonged cutting of corn.¹ The significance of this lies in the fact that it is the only flint sickle which can be even remotely linked up with the Neolithic 'A' culture in Sussex, and it may be contrasted with the specimen from Selmeston which, as we have seen, is likely to be of Neolithic 'B' origin. Other specimens which will be discussed in due course are either of Bronze Age type, or have been found without datable associations.

Canon Greenwell's subsequent experience at Grimes' Graves in Norfolk in 1870 led Messrs. Ernest H. Willett and Plumpton Tindall to re-examine the Cissbury pits in 1873-4, when each cleared out a shaft to the bottom, thus definitely revealing their true nature.² Tindall unfortunately died before publishing his results, so that Willett included in his own report a bare outline of Tindall's results as far as he knew them. Tindall's pit was 39 feet deep and 10 feet wide at the bottom, but had no galleries; Willett's was 20 feet deep, 19 feet wide and had eight galleries.

Then Pitt Rivers returned to the attack in 1875.³ His object now was to discover whether the mines were worked by the occupants of the hill-fort, or whether they belonged to an earlier age. He noticed that though the rampart of the hill-fort seems to surround and defend the mines, yet there is a chain of thirty-nine shafts outside its limits on the south. He opened two of these last, and found coarse red and brown pottery, but no galleries. He also inferred that

¹ *Arch.*, xlii (1869), p. 66 and pl. viii, fig. 20.

² *Ibid.*, xlv (1872), pp. 337-48; *Proc. Brighton and Sussex Nat. Hist. Soc.*, xxii (1875), pp. 24-46.

³ *J.R.A.I.*, v (1876), pp. 357-90.



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PLATE VII.—AIR-PHOTOGRAPH OF HARROW HILL, SHOWING SMALL IRON AGE FORT, AND THE MOUTHS OF FLINT-MINE SHAFTS; ONE OF THE LATTER IN PROCESS OF EXCAVATION.



PLATE VIII.—HARROW HILL FLINT-MINES: EXPLORING GALLERIES DURING THE 1936 EXCAVATIONS
Inset: A MINER'S PICK OF RED DEER'S ANTLER (ABOUT $\frac{1}{6}$)

if the mines were older than the hill-fort he might find some shafts underneath the rampart and ditch of the fort at a point midway between the shafts that lie inside the latter and those that lie outside. Accordingly he cut a wide section through the ditch at a point a little to the west of the south entrance of the hill-fort, and was rewarded by discovering six shafts through which the ditch of the fort had been cut at a later date. Galleries there were, and over the entrance to one of them were a number of criss-cross scorings in the chalk. Pitt Rivers was exploring one of these galleries and approaching thereby the base of an unexcavated shaft with which it communicated. He began digging in the chalk rubble that poured into the gallery from the shaft, and what he found is worth describing in his own words.

Presently a well-formed and perfect human jaw fell down from above, and on looking up we could perceive the remainder of the skull fixed with the base downwards, and the face towards the west, between two pieces of the chalk rubble. When I saw this I hollowed out so loudly that Mr. Harrison, who happened to be outside at the time, although he had been himself previously assisting in the excavation of this gallery, thought that it must have tumbled in, and came with a shovel to dig us out. It was some time before I could make him understand that we had added a third person to our party.¹

The 'third person' proved to be a young woman—or rather her skeleton—who had been buried head downwards near the bottom of this shaft. Her trunk and limbs were found extending upwards from the skull, so that she had either fallen in head-first and been killed, or her body had been flung in without ceremony. Her skull corresponded in shape with the Neolithic type, but is not on that account conclusive of Neolithic date, as the type has survived to the present day. The shaft in which she was buried was unusually narrow, being only 4½ feet wide. All the pits of this group were about 17 feet deep below the original surface of the ground.

Pitt Rivers next examined a very large shaft situated in the north-west part of the interior of the hill-fort. Before excavation the depression marking its position was as much as 66 feet in diameter.

¹ *Ibid.*, p. 375.

He began by excavating only one half of the shaft, and dug down to a depth of 42 feet without reaching the bottom. By this time the unsupported filling of the unexcavated half began to fall in, prevent-

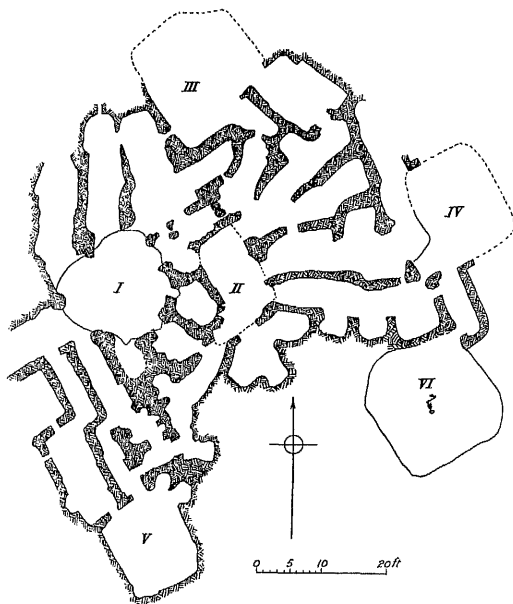


FIG. 22.—CISSBURY FLINT-MINES : PLAN OF A GROUP OF SHAFTS (NUMBERED I TO VI) AND THEIR UNDERGROUND GALLERIES

After J. Park Harrison

ing further progress, but Pitt Rivers learnt enough to know that in this shaft no fewer than six seams of flint were encountered, some of them being followed up by short galleries at their various levels. Charcoal found at a depth of 30 feet proved to be from gorse, willow

and beech, but the most important feature of all was the discovery at a depth of 13 feet of a piece of the side of a shouldered pot of Neolithic 'A' type, similar to that found at Whitehawk Camp. Enough survived to enable Professor Stuart Piggott to draw the accompanying reconstruction (fig. 23). This proved that this particular shaft is not earlier than the Neolithic period, and there is no evidence so far to suggest a later date for any of the Cissbury mines.

Pitt Rivers' work at Cissbury was carried on by his colleague,

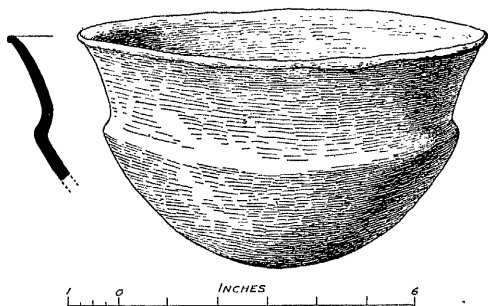


FIG. 23.—NEOLITHIC A2 BOWL, RESTORED, FROM CISSBURY FLINT-MINE SHAFT ($\frac{1}{2}$)

*After Professor Stuart Piggott
(Pitt Rivers Museum, Oxford)*

Mr. J. Park Harrison, for the next year or two, and he opened three more shafts in the immediate neighbourhood of Willett's pit.¹ He explored and planned the intricate system of galleries connected with them (fig. 22), and paid special attention to the scratch-markings on the chalk walls and blocks, to which reference has already been made. He also stumbled on four small pits belonging to the Early Iron Age occupation of the hill-fort, but perhaps his most noteworthy find was in a shaft 30 feet deep. At a depth of 16 feet he came upon the skeleton of a young man, about twenty-five years

¹J.R.A.I., vi (1877), pp. 263, 431; vii (1878), p. 412.

of age and under 5 feet in stature, buried in the usual contracted attitude, and surrounded by a single row of chalk blocks. This last peculiar feature immediately recalls the method of burial of one of the young women in the ditch at Whitehawk Camp, thus providing a second link between the Cissbury mines and the A2 phase of the Neolithic period.

THE HARROW HILL FLINT-MINES

(51/081100)

Harrow Hill is a bold downland eminence about four miles west by north of Cissbury. The mines, which are over one hundred in number and superficially resemble those of Cissbury, cluster thickly round the north side of the summit, while others have been levelled over by the makers of a small four-sided defensive enclosure of later date (plate VII). The author's father was the first to draw attention to this site as a group of flint-mines,¹ and in 1924-5 the Worthing Archaeological Society confirmed this diagnosis by opening up one of the shafts.² This pit was 22 feet deep and 20 feet in diameter, and had six galleries opening from its base (plate VIII), as well as one short gallery and some 'open cast' workings at a higher level, following a higher seam of flint (fig. 24). In most respects this pit resembles those opened at Cissbury so closely that one is prepared to regard them all as contemporary: there were, for instance, the same kind of scratch-markings on chalk blocks and a complicated design of criss-cross lines and ladder-patterns scratched on the wall of the shaft beside the entrance to a gallery; there were also shoulder-blades used as shovels, and wedges made of deer's antler, as at Cissbury. These features have not been recorded in the mines of Bronze Age date. Only pottery was lacking to clinch the question. In 1933, however, the same Society was excavating on New Barn Down, about half a mile south of the Harrow Hill mines, and came unexpectedly upon a Neolithic dwelling-pit which not only contained two flint axes of the same type and technique as those produced at the mines (though one was polished), but also yielded fragments of several Neolithic

¹ S.A.C., lxiii (1922), pp. 31-2.

² *Ibid.*, lxvii (1926), pp. 103-38.

pottery vessels, some at least of which were of A2, and some, perhaps, of A1 type ¹ (plate V, 1). The connexion between the dwelling-pit and the mines is, of course, not absolutely proved, but this

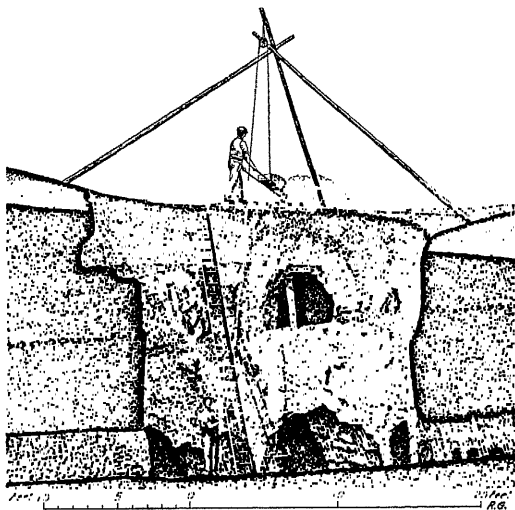


FIG. 24.—SECTION OF HARROW HILL FLINT-MINE, SHOWING SHAFT AND GALLERIES

evidence, taken with that from Cissbury and the absence from both sites of anything suggesting a date in the Bronze Age, points strongly in the direction of a Neolithic date for both these mining centres.

Further work was done by the same Society on Harrow Hill in 1936 under the direction of Mr. G. A. Holleyman, when three more small shafts were opened.²

¹ *Ibid.*, lxxv (1934), pp. 153-6, 162-6, 168-9.

² *Ibid.*, lxxviii (1937), p. 237.

THE FLINT-MINES ON CHURCH HILL, FINDON

(51/112083)

The Church Hill group of mines is situated near the top of that hill, about 1,000 feet south-west of Findon Church, and one and a half miles due west of Cissbury. The group, which does not appear

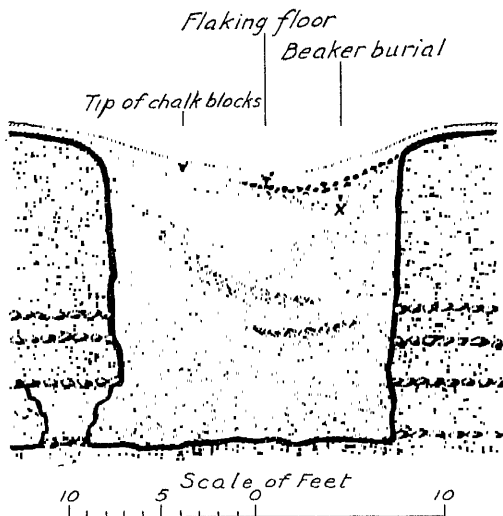


FIG. 25.—SECTION OF FLINT-MINE, CHURCH HILL, FINDON, SHOWING POSITION OF BEAKER BURIAL IN THE FILLING

After J. H. Pull

to be a large one, was first recognized as a flint-mining site by Mr. H. S. Toms.¹ Since then Mr. J. H. Pull, of Worthing, has carried out excavations on the site, clearing several shafts and flaking floors.²

¹ His survey and brief description of these mines were published by the late Mr. W. Law in *S.N.Q.*, i (1926-7), pp. 222-4.

² *S.C.M.*, vii (1933), pp. 810-14; xxvii (1953), p. 15.

These floors, which range in area from 100 to 200 square feet, are contemporary with the mining industry, because, while they sometimes overlie mining dumps and filled-in shafts, they are also sometimes partially covered by dumps thrown out from other shafts. In this case, besides containing the usual refuse of axe-making, they yielded many small flake-implements, such as scrapers, knives and saws. Thus both core and flake industries are represented.

The shaft which was opened a little to the west of the centre of

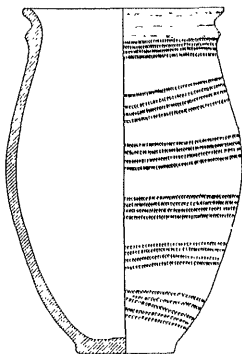


FIG. 26.—BEAKER FROM FLINT-MINE, CHURCH HILL,
FINDON ($\frac{1}{4}$) (W.M.)

the area, proved to be 16 feet deep, and 17 feet wide (fig. 25). There were no galleries, but only short headings, as the chalk here is very friable. In the upper part of the filling of the shaft occurred a remarkable burial—a cremation inside a 'beaker' vessel of unusual form, accompanied by two flint axes of elongated oval form. This was covered by a layer of brown clay which in turn was overlaid by a tip of chalk blocks from a neighbouring shaft and by a flaking-floor. It seems, therefore, that we cannot avoid the conclusion that the beaker is contemporary with the mining in this case. This vessel (fig. 26), which belongs to a class that is typical of the Early Bronze

Age, and which will be more fully described in the next chapter, is nevertheless of a peculiar type, and its association with a cremation confirms the suspicion that it may be a late variety of beaker, verging on the Middle Bronze Age in date (about 1500 B.C.). This type is probably a late arrival from Holland.

Scattered through the soil at the same level were fragments of another peculiar vessel with a flat, out-turned lip and a decoration

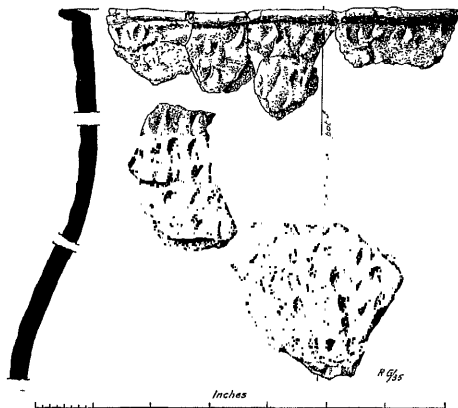


FIG. 27.—RUSTICATED WARE FROM FLINT-MINE, CHURCH HILL, FINDON ($\frac{1}{2}$) (W.M.)

consisting of vertical rows of pinches (fig. 27). Fragments of a vessel showing the same decoration, but lacking the rim, occurred with beaker-fragments in an Early Bronze Age habitation site overlying the Neolithic camp at Whitehawk, Brighton,¹ and in that case also suspicion centred on Holland as the likely source for this unusual type of pottery.²

During further work on the site since 1945 Mr. Pull claims to

¹ *Ant. J.*, xiv (1934), pp. 112, 119-21, and figs. 54, 57.

² For a discussion of this 'Arminghall' ware see *P.P.S.*, ii (1936), pp. 19-23.

have made discoveries of considerable interest.¹ These include fragments of Neolithic B, beaker and Middle Bronze Age vessels sealed beneath an undisturbed flaking floor, thus indicating that the mining continued as late as the Middle Bronze Age. To this last period also a hut-site is attributed, situated in a small compound adjacent to one of the mine-shafts. In the filling of a shaft the carbonized remains were found of a wooden bowl of black poplar with slightly beaded upright rim and ornament of close vertical incisions. In another shaft the decay of a wooden object resembling a ladder had left two vacant spaces sloping down through the compact chalk rubble filling the shaft; these spaces were parallel, some 15 inches apart, and sloped down from the lip of the shaft to the middle of the floor, 18 feet below.

THE BLACKPATCH FLINT-MINES

(51/094089)

These mines, forming a cluster of about one hundred shafts, lie on a southern spur of Blackpatch Hill, three miles west of Cissbury, one mile south-east of Harrow Hill, and a quarter of a mile north-east of Myrtle Grove House. Mr. J. H. Pull first recognized their true nature in 1922 and began the excavation of one of the shafts (Shaft 1), in which task he was aided by the members of the Worthing Archaeological Society, the help of which he sought.² On this site there appears to be only one seam of flint that was exploited, and this lies at a depth of 10 to 11 feet below the surface. Shaft 1, in the opening of which the author took part, was 10½ feet deep and 17 feet wide, and from its base seven short galleries radiated. Its general features resemble those already described.

Subsequently Mr. Pull and the late Mr. C. E. Sainsbury worked together for ten years exploring the site. During this time they opened seven shafts, cleared four flaking-floors, located the dwellings of the miners (as they claim), and examined twelve burial mounds,

¹ *S.C.M.*, xxvii (1953), p. 15.

² *S.A.C.*, lxxv (1924), pp. 69-111. The site has since been ploughed over and levelled.

some of which appear to have been contemporary with the mining.¹ The dwelling-sites are situated a short distance to the north-east of the mines and consist of a number of shallow depressions in the chalk, from 8 to 20 feet wide, and sunk from 9 to 18 inches into the chalk. They contained pottery, flint flakes and implements—axes and scrapers—sandstone rubbers, animal bones and burnt flints. The implements were of the same type and material as those found in the mines. Unfortunately nothing is said on the all-important question of the nature of the pottery, which obviously holds the key to the situation. The few shards shown to the author by Mr. Pull are of indeterminate character.

The most important features about this site are the burials which have been found under circumstances pointing to their being contemporary with the mining industry, and therefore giving a clue as to its date. Of all the burials found on or near the site, four cremations and four inhumations merit special notice. (1) One-third of the way down in the filling of Shaft 7 a collection of cremated human bones was found, accompanied by a flint axe, knife and scraper. As the surrounding chalk was not burnt, the bones must have been cremated elsewhere and then deposited here during the filling-up of the shaft. (2) Another cremated burial was found underneath a flaking-floor—floor 2—which it therefore antedates, as there was no sign of it having been inserted through the floor by later people. With it were fragments of pottery of 'beaker class', two flint axes and a pointed tool (fig. 29, 1, 5). This flaking-floor partly overlies one shaft, and was itself partially overlaid by the dump from Shaft 2, so that it is definitely contemporary with the mining industry. (3) A burial mound—barrow 1—had been constructed over the mouth of a recently filled shaft (No. 3), and contained the cremated remains of a child with the broken pieces of a collared urn (typical of the Middle Bronze Age), two small flint axes and one oval flint knife snapped in two. The mound itself was largely constructed of unweathered blocks of chalk which must have been obtained from the mines, and it was built soon after the filling of the shaft below it, as the settling down of the loose filling had carried

¹ J. H. Pull, *The Flint Miners of Blackpatch* (London, 1932).

down with it the central part of the mound and part of the interment. (4) Barrow 5, which contained a cremation and small collared urn, was covered over with nodules of flint from the bottom of the mine-shafts—material which could have been obtained only when the shafts were open. (5) Barrow 3, which overlay Shaft 5, contained two skeletons buried in the contracted attitude characteristic of the Neolithic and Early Bronze Ages. One, a male, was accompanied by a leaf-shaped arrow-head, flint chopper, ovate hand-axe, flint axes and a boar's tusk. The second was a female, while the cremated remains of a third individual were scattered among the two skeletons with which they were apparently contemporary. The whole mound was covered by a large flaking-floor. (6) Barrow 12, which overlay Shaft 8, was composed of blocks of chalk and flint from the mines, and contained two contracted skeletons, one of which was a man of the physical type associated with the Early Bronze Age. This mound was earlier in date than two neighbouring shafts which encroached on it.

The practice of cremation did not appear before the latter part of the Early Bronze Age, and the collared urn was, as we shall see, typical of the Middle Bronze Age. The cumulative effect of the evidence afforded by these burials is, therefore, that the mining on the Blackpatch site continued through the Early into the Middle Bronze Age—a conclusion which, after all, is perfectly reasonable. The surprising thing is that the types of the flint implements remain practically identical with those found in the Neolithic mines.

THE STOKE DOWN FLINT-MINES

(41/831096)

Hitherto we have described the four mining-sites in the group near Worthing. We now turn to the mines on Stoke Down, three and a half miles north-west of Chichester, and a little more than half a mile north-east of West Stoke church. These appear as a long line of indistinct depressions, straggling along the north-east brow of the hill, a little to the north of the conspicuous clump of trees that crowns its summit. In the same vicinity are traces of a village of the

beginning of the Iron Age, but this, of course, has no connexion with the mines. In 1910-13 Major A. G. Wade, M.C., excavated three of the shafts, and found them to vary in width from 9 to 12 feet and in depth from 9 to 15 feet. Galleries were absent or rudimentary, consisting of short undercuttings at the base of two of the shafts. No pottery, burials or chalk cups were found, but the same kind of flint implements and antler tools as elsewhere, and one shoulder-blade shovel. The outstanding discovery was the upper stone of a grain-rubber, which occurred near the bottom of one of the shafts; this shows that the miners were familiar with agriculture, and it may perhaps be correlated with the flint sickle found by Pitt Rivers at Cissbury. The finds do not warrant any conclusions as to the more precise dating of these mines.¹

This exhausts the list of mines which have been proved by excavation. We must now refer briefly to those four sites which yet await corroboration.

Bow Hill (41/825109).—On the south-east spur of Bow Hill, overlooking the romantic Kingley Vale, some four miles north-west of Chichester, lies a small group of pits and mounds of suggestive appearance. They are described as a 'British Village' in the older editions of the Ordnance maps—a conception which goes back at least a century.² One of the smaller pits was opened by Mr. B. C. Hamilton in 1933, with inconclusive results,³ so that for the present these pits are best not regarded as flint-mines. The group of pits interrupts the course of an ancient terrace-way which winds round the nose of the spur, coming from the south-east; ⁴ on the top of Bow Hill this track is lost, but is picked up again descending the north-west slope towards Stoughton, and in this part of its course it is interrupted by one of the prehistoric (and undated) earthworks which lies along the brow of the hill (plate X). This road can therefore be proved to have gone out of use in very early times.

¹ *P.P.S.E.A.*, iv (1923), pp. 82-91.

² See W. Hayley Mason, *Goodwood* (1839), p. 181; *S.A.C.*, lviii (1916), pp. 88-90.

³ *S.N.Q.*, iv (1933), pp. 246-7 (plan).

⁴ *Ibid.*, ii (1928), pp. 80-1; *S.C.M.*, v (1931), pp. 218-19 (air-photograph).

The Lavant Caves (41/869098).—These were situated on Hayes Down, three miles north of Chichester and one mile south-west of the Trundle. In or about 1890, while a shepherd was making holes for his hurdles, his bar slipped through his fingers and vanished. Subsequent investigations revealed a series of underground galleries lying close under the surface of the ground, and said to cover about an acre. The author explored some of these in 1909, but they have since completely fallen in, at any rate in the region first opened up. Mr. Charles Dawson and Mr. John Lewis explored the galleries in 1893 and found a curious variety of objects which may be classified in three categories—(1) a tine of a red-deer's antler, a chalk cup and some worked flints and flakes; these almost prove the site to have been originally a flint-mine; (2) a number of Roman relics, including several of bronze; and (3) some lead seals of wool-packs of sixteenth-century date. The last two classes of objects suggest that the galleries, being so near the surface, had been discovered in Roman times and again in the sixteenth century, when they were found to be convenient places for hiding valuables or storing sacks of wool.¹ The objects discovered have been deposited by the late Duke of Richmond in the keeping of the new museum at Chichester.

Tolmere Pond, Findon (51/110088).—This small group of suggestive pits and mounds lies on the south side of the main road opposite Tolmere pond on the hill three-quarters of a mile west of Findon. Like the pits on Bow Hill, they interrupt an older hollow-way, and appear themselves to be older than an earthwork and lynchet belonging to the 'Celtic' field-system (see Chapter VIII). A trial hole dug by the author in one of the pits proved it to have been completely re-filled at some time before the Roman period, but was otherwise inconclusive.² Since then Mr. J. H. Pull has carried out more extensive exploration, but found no evidence that the pits had been flint-mines.

Windover Hill (51/545035).—A small group of pits and mounds, similar to those of the proved flint-mines, lies on the north crest of

¹ *Antiquary*, xxviii (1893), pp. 22, 160; *S.A.C.*, lviii (1916), pp. 68-74 (plan); *S.N.Q.*, ii (1928), p. 81.

² *S.N.Q.*, i (1927), pp. 168-170 (plan).

Windover Hill, five miles north-west of Eastbourne, about 600 feet east of the colossal figure of the Long Man which is carved on the steep north face of the hill (plate XXXII). The site is crossed by two engineered roads of Roman or pre-Roman type, and must not be confused with some modern chalk quarries in the neighbourhood.¹

THE FLINT IMPLEMENTS FROM THE MINES AND THEIR DATE

In discussing the flint implements found in the mines we enter upon a scene of former controversy which is now happily settled.

We have already noted that the principal objective of the knappers who worked at the mines was to produce flint axes, rather than any other tools. As early as 1868 Pitt Rivers noticed that the flints he found at Cissbury resembled in form nearly every type of Palaeolithic implement from the Drift and Cave periods, as well as the more refined forms of axe then regarded as Neolithic,² and the same observation has been made by all those who have investigated our flint-mines, including Harrow Hill, Church Hill, Blackpatch and Stoke Down (cf. figs. 31 and 32). In 1912 Mr. Reginald A. Smith, F.S.A., enlarged upon this view in some detail with regard to Cissbury and the mines at Grimes' Graves in Norfolk, pointing out resemblances to every phase of the Palaeolithic period, and suggesting that the date of these mines should be placed in the Aurignacian phase of the Cave period.³ This precipitated a great controversy and stimulated further research which led to renewed excavation both at Grime's Graves and in Sussex. If, however, specimens of all Palaeolithic types occur in the mines, it is difficult to see why the Aurignacian should be picked out as representing the period of the work in face of the much greater claims of the Neolithic and Early Bronze Ages, and for various reasons archaeologists are now fairly unanimous in attributing this industry to the latter periods.⁴ Among

¹ S.A.C., lxi (1928), pp. 95-7.

² *Arch.*, xlii (1869), pp. 68-9.

³ *Ibid.*, lxiii (1912), pp. 108-58.

⁴ J. G. D. Clark and S. Piggott, 'The Age of the British Flint Mines', *Antiquity*, vii (1933), pp. 166-83.

these reasons are the facts that the animal bones and snail-shells found in the shafts agree with those found in the Neolithic causewayed camps and not at all with those found in settlements of

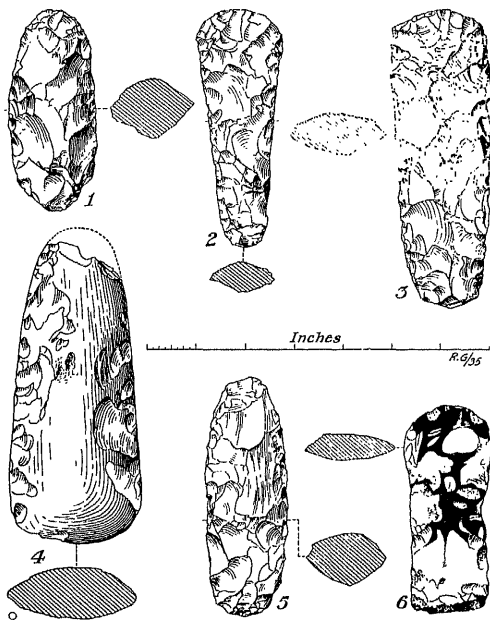


FIG. 28.—AXES FROM CISSBURY FLINT-MINES ($\frac{1}{8}$)

4, 6, Partly ground. (1, 2, 4, 6, W.M.; 3, E.C.; 5, J. H. P.)

admitted Aurignacian date. The snails include some, like *Arianta arbustorum*, which demand moist conditions and will not live on the tops of the Downs at the present day, thus indicating moister conditions than the present. This is corroborated by finding that

the charcoal at Cissbury, Harrow Hill and Blackpatch represents to a large extent Willow—a tree which, on account of lack of water, does not now grow within two or three miles of these mines, but

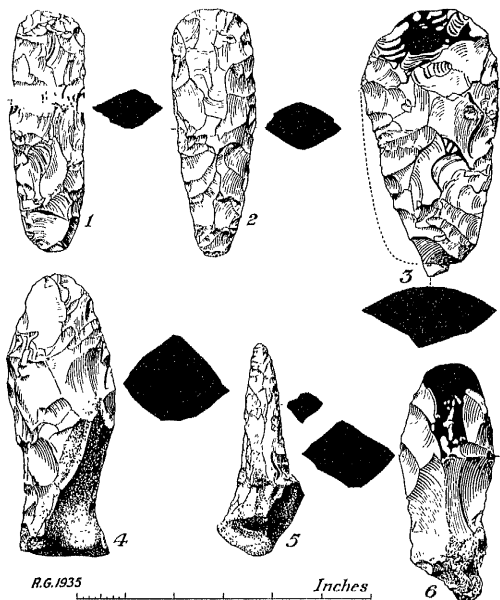


FIG. 29.—AXES, ETC., FROM BLACKPATCH FLINT-MINES ($\frac{1}{3}$)

1, 5, From Floor 2 with cremated burial; 2, Barrow 3; 4, Shaft 6; 3, 6, From surface, partly ground and polished. (1, 2, 4, 5, J.H.P.; 3, 6, B.W.)

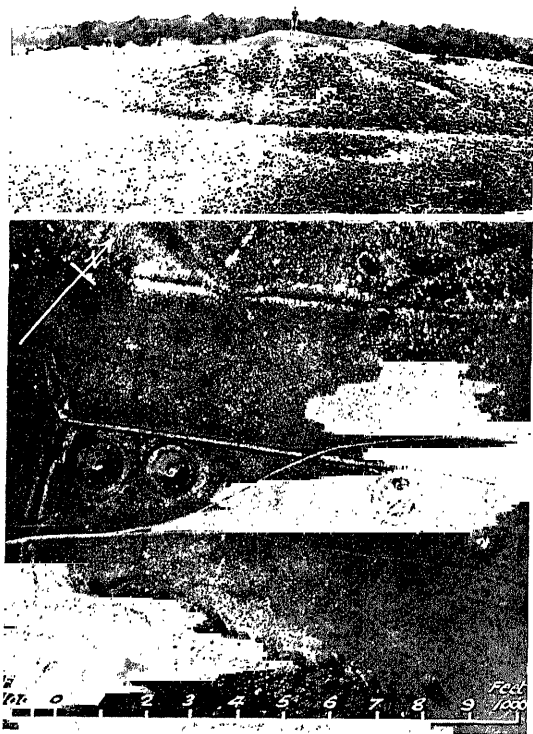
which might well have grown in the valleys below them if the water-table in the chalk had been high enough to enable springs to break out there. This evidence, then, together with that of the domestication of animals and of agriculture, agrees with that from the causewayed camps.



PLATE IX

Above: PICK-HOLES MADE BY AN ANTLER-PICK IN THE WALL OF A GALLERY,
HARROW HILL.

Below: SOOT-MARKS FROM A MINER'S LAMP ON THE ROOF OF A GALLERY,
HARROW HILL.



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PLATE X.—BELL-BARROWS ON BOW HILL, NEAR CHICHESTER, FROM THE
GROUND AND FROM THE AIR

We have already seen that the evidence of pottery at Cissbury, and of pottery and burials at Church Hill and Blackpatch, negatives

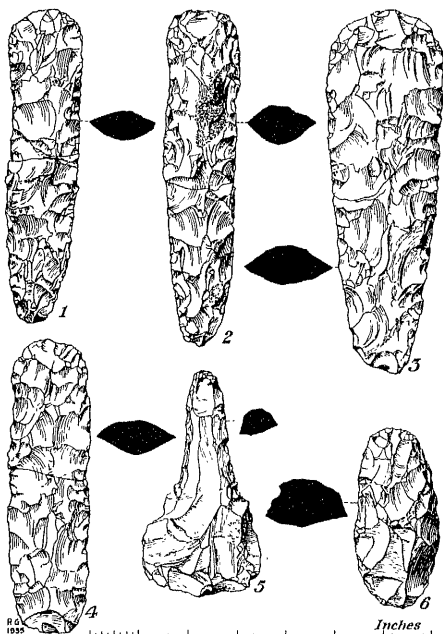


FIG. 30.—AXES, ETC. FROM CHURCH HILL FLINT-MINES (FINDON) (½)
1-4, 6, From Floor 6; 5, Shaft 1. 1-4, Broken across (J.H.P.)

an earlier date than the Neolithic period and actually points in the last cases to the Early or Middle Bronze Age. We must, therefore, in view of these indications return to consider the problems associated with the flint implements.

In the first place, we are not dealing with a mixture of industries of different dates from the Palaeolithic onwards. All the types, however varied, belong to the same period, namely that of the mines themselves. This is proved by the patination of the flints. The flint which was mined has on being fractured a surface which is more or less black, so that all the implements made from it were originally black in colour. Many of those which we find are, however, white or of various degrees of mottled blue, white and black. The change which has occurred in the surface of the flint is called patination, and consists of a bleaching of the surface due to a physio-chemical change. Now all the excavators of flint-mines have, almost without exception, remarked on the fact that the most highly patinated flints are found near the upper part of a mine-shaft, while those found at low levels or in the galleries have undergone little or no change.¹ The universal rule is, therefore, that the degree of patination varies inversely with the depth at which the flint is found below the surface. It is also observed elsewhere that where there is no chalk there is little or no patination even of surface flints. This suggests that not only is proximity to surface soil an important factor in the production of this kind of patination, but the presence of chalk is also essential, the one being ineffective without the other.

The actual change from black to white is brought about by a solvent attacking the silica. Experiments recently carried out for the author by Mr. D. W. Hudson support the view that the solvent in question is carbonic acid in the ionized state, contained in rain-water charged with the nitrogenous products of decomposing vegetation acting in the presence of chalk. In the experiments recently struck flakes of black flint were allowed to stand in such a solution, artificially prepared, for twenty-two months at room temperature, chalk being also added to the solution. These flints developed a definite patina—mottled blue and white—attaining a maximum thickness of 0.01 mm., while others which had been lying in chalk and water only remained black. The patination so produced is in itself chemically free from any trace of chalk.²

These experiments explain the relation of the degree of patination

¹ *S.A.C.*, lxvii (1926), pp. 133-7.

² *Antiquity*, xiv (1940), p. 435.

to the depth at which a flint is found in a mine-shaft, for the nearer it is to the surface the more it is acted on by the products of decayed

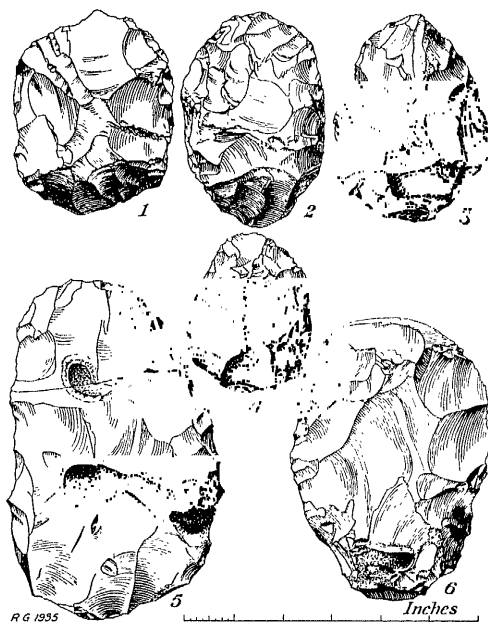


FIG. 31.—PSEUDO-PALAEOLITHIC FORMS FROM THE FLINT-MINES :
'OVATES' ($\frac{1}{3}$)

2, 3, 6, Cissbury; 1, 5, Church Hill; 4, Blackpatch. (1, 3-5, J.H.P.; 2, L.M.—R.G.R.; 6, W.M.)

vegetation. If, therefore, some flints were older than the mining industry and had been lying about for a long time on the surface before the shafts were dug, they would have acquired a dense white patina, and when, later on, the mines had been opened and refilled,

some of these earlier flints would be certain to have found their way into the shafts, betraying their greater antiquity by their patination which would not conform to the observed rule described above. As this does not happen, and as the patination of those flints which most resemble Palaeolithic forms is not necessarily any greater than those of the latest types of axe, one must infer that all types are contemporary, and that one of the most peculiar features of the flint-work of the period with which we are dealing is that it tends freely to reproduce ancestral forms, and thus (to borrow a phrase from

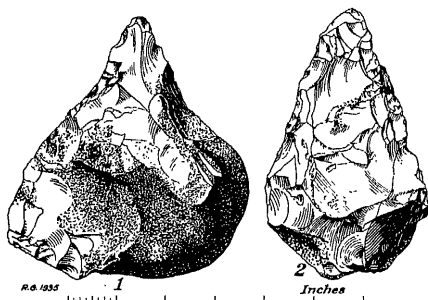


FIG. 32.—PSEUDO-PALAEOLITHIC FORMS FROM THE FLINT-MINES :
'POINTED HAND-AXES' ($\frac{1}{2}$)

1, Church Hill (J.H.P.); 2, Cissbury (W.M.)

biology) to climb up its own genealogical tree. The same phenomenon at the dawn of the Metal Age has been observed in such widely separated localities as the south of France ¹ and the north of Ireland.² The fact, however, that these pseudo-palaeolithic forms occur only in the mines and workshops, and not in the causewayed camps, suggests that they may have been in some degree merely blocked-out axes which were rejected in an early stage of manufacture.

The most developed form of tool found in all the mines is the delicately worked 'celt' or axe which tends to be long, thin and narrow, sometimes an elongated oval (fig. 29, 1, 5; fig. 30, 6) or

¹ *Antiquity*, ix (1935), pp. 118-19.

² *Ant. J.*, xv (1935), pp. 194-5.

else with straight and converging sides. The cutting edge is at the wider end and is usually an arc of a circle; the butt end is thin and fairly wide and the side-edges sharp. No axe bearing any trace of grinding has ever been found in a mine-shaft in Sussex; a few examples have been picked up on the surface among the shafts, and as these have obviously been derived from the mines there is little doubt that the axes were only chipped into shape on the spot and that they were then bartered away to others who ground them or not as they pleased. The same type of axe is undoubtedly found widely distributed in the county and elsewhere, including the causewayed camps, and more often than not when so found it is wholly or partly ground (fig. 33, 1-3). The Worthing Museum contains eight axes, partly or wholly ground, found on the surface at Cissbury (fig. 28, 4, 6), the best example (No. 4) having been discovered when cutting through the rampart of the later hill-fort. Two partially ground and polished specimens were found on the surface at the Blackpatch mines by Mr. Barclay Wills (fig. 29, 3, 6); they are peculiar in being what one would take to have been 'wasters' rejected by the knappers. Another rough specimen from this site has been polished round the waist only, apparently to facilitate hafting.

The output of axes from the mines is difficult to estimate, but even if we take into account the enormous waste of material in the form of flakes the number of axes manufactured must have been very considerable, and far in excess of the most extravagant needs of the immediate community. This, together with the fact that axes of this type, but usually ground, are commonly met with all over the Downs as well as in more remote parts of the country, seems conclusively to show that among the fruits of rudimentary civilization that came in with the Neolithic culture must be numbered a capacity for team-work with some conception of division of labour, and in addition a sufficiently settled state of society to allow the development of industrial activity. Thus the Neolithic period not only ushered in a pastoral stage, but possessed also the rudiments of agriculture and industrialism, each of which was in turn destined to form the basis of life in succeeding stages (see chart, fig. 1).

Mr. Charles Dawson recorded the discovery by the shepherd,

Stephen Blackmore, of a flint axe lying in the mouldering remains of its wooden handle at Mitchdean, East Dean, near Eastbourne.¹ The sketch made of it at the time of its discovery serves to show how these axes were undoubtedly hafted, but it was unfortunately impossible to preserve the original.

FLINT IMPLEMENTS FOUND ON THE SURFACE

Flint implements have been found fairly plentifully over most of the chalk Downs, and to a less extent on the sand ridges of the Weald and on the Coastal Plain. In this section we are not concerned with Mesolithic flints which, as we have already seen, are mainly found on the sand ridges, but with those flints which are of Neolithic or Bronze Age form, and with others of undatable form which are found with a similar distribution.

Implements are not found evenly distributed everywhere, but are for the most part confined to numerous localized areas, some of which are known to collectors. This suggests that these localities may have been the sites of encampments of nomad pastoralists, for they have yielded no pottery and generally provide a wider variety of types of flint implements than do the causewayed camps.

We must now briefly notice some of the principal flint tools that have been found on the surface.

Axes.—Besides the type of flint axe we have been considering there is one kind which has an expanded cutting-edge (fig. 35, 4), that is, a cutting edge which becomes suddenly wider than any part of the body of the tool. This was probably made by a knapper who had seen one of the earliest axes of copper or bronze, which have expanded edges due to being sharpened by hammering (fig. 41). Two of the axes from Cissbury seem to approach this form (fig. 28, 2, 6). One was also found with a polished triangular knife of Early Bronze Age type at Balcombe (fig. 35, 5).

Axes of other material than flint—such as volcanic rocks—are rare (fig. 33, 4).² When they are perforated through the middle for

¹ *S.A.C.*, xxxix (1894), pp. 97–8.

² See *S.N.Q.*, viii (1940) p. 67.

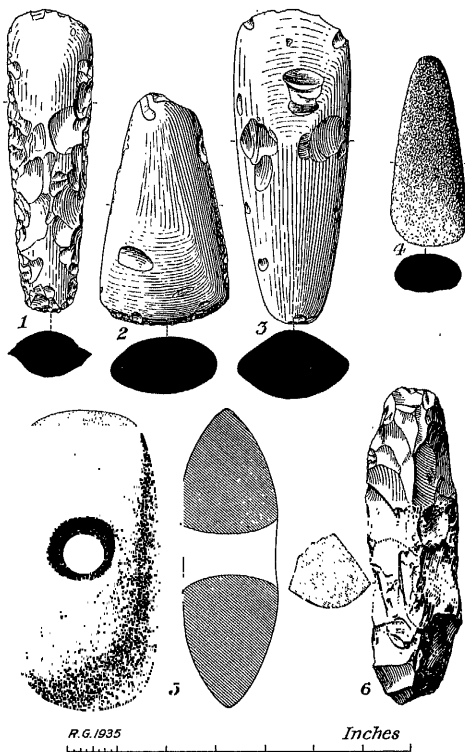


FIG. 33.—STONE AXES, ETC. ($\frac{1}{3}$)

5, Perforated mace of igneous rock; 6, Flint (E.C.); 2, (L.M.); 3, Billingshurst (L.M.);

hafting they belong definitely to the Bronze Age. The best specimen of this type is that which was found with an amber cup in the large burial mound at Hove (plate XIII, 2). Akin to these are the somewhat mysterious mace-heads which are shaped like double-ended adzes, generally of volcanic rock, or sometimes of quartzite, and which are perforated for hafting (fig. 33, 5). These implements, which show no signs of having been used, are found most frequently in south-eastern England, and least frequently in the districts from which their material must have been obtained.¹

Picks.—Another common core-implement is the flint pick which is roughly triangular in section (fig. 33, 6). This seems to be allied to the pick characteristic of the Campigny culture in France, which is placed between the Mesolithic and Neolithic periods. In Sussex the pick is found in a distribution which corresponds with that of the Neolithic rather than the Mesolithic population, for it is practically confined to the chalk areas and is not found in the known Mesolithic sites. Its use can only be guessed at, but its triangular section suggests that it may have been designed to stand greater lateral strain than the axe, and therefore one may guess that it may have been hafted like a hoe and perhaps used for breaking up the ground for cultivation.

Arrow-heads.—Flint arrow-heads are numerous and their distribution is instructive. Of the 1682 specimens which have been traced, 50 per cent come from the chalk Downs, 43 per cent from St. Leonard's Forest, near Horsham, and only 7 per cent from elsewhere. For these figures and those that follow the author is indebted to the late Dr. Eliot Curwen's statistical study of the arrow-heads of Sussex.²

These beautifully worked little weapons are divided into several types according to their shape. (1) The leaf- and lozenge-shaped types (fig. 34, I-II) are definitely Neolithic in date,³ though it is possible that they may have survived into the Bronze Age. They are

¹ The type, with list of known examples from Europe, is discussed by Dr. Eliot Curwen in *S.A.C.*, lxi (1928), pp. 83-9. See also *Ant. J.*, xxi (1941), p. 337. For axe-hammers see *Arch.*, lxxv (1926), pp. 77-108.

² *S.A.C.*, lxxvii (1936), p. 15.

³ For the dating of arrow-heads see *Arch.*, lxxvi (1927), pp. 81-106.

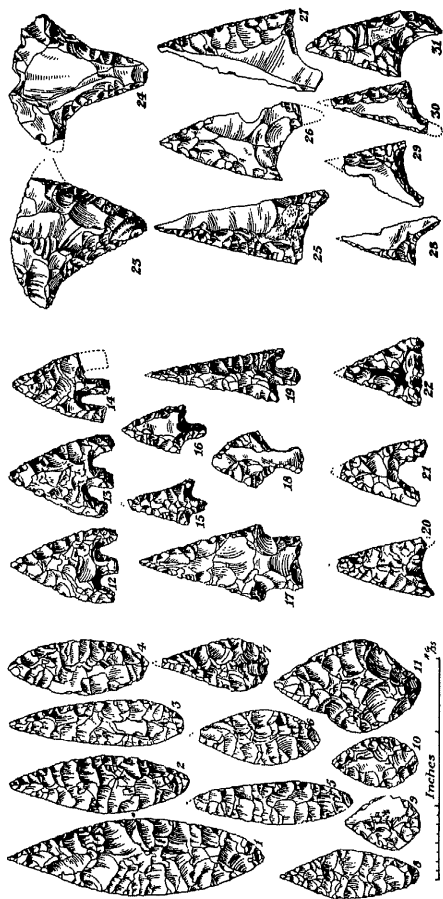


FIG. 34.—FLINT ARROW-HEADS ($\frac{1}{2}$)

1-11, Leaf and lozenge forms (Neolithic) mostly E.C. and E.J.G.P.; 12-14, Barbs and tangs equal length (Beaker period) (E.C.); 15-19, Barbs and long yugs (Bronze Age) (E.C., E.J.G.P. and G.W.); 20, 21, Hollow-based (E.C. and L.M.—R.G.R.); 22, Triangular (ground and polished on both faces) (E.C.); 23-31, *Petit tranchet* derivatives ('halbert' and 'one-barbed') (E.C., E.J.G.P. and G.W.); 1-3, 6, 11, 17, 23-6, 28, 31, from St. Leonard's Forest; 4, 5, 7-10, 12-16, 18-22, 27, 29, 30, from the Downs.

found more than twice as frequently on the Downs as in the forest, and are fairly common in both localities. One example, not illustrated, has been made from a flake from a polished axe. (2) Those with barbs and tangs (fig. 34, 12-19) belong to the Bronze Age; those in which the barbs and tangs are of the same length (fig. 34, 12-14) belong to the 'beaker' period (Early Bronze Age); those in which the tangs are longer (fig. 34, 15-19) may be Early or Middle Bronze Age in date. Barbed arrow-heads are found about 60 per cent more frequently in the forest than on the Downs, and provide the largest number of specimens of any class. (3) Hollow-based arrow-heads are rare (fig. 34, 20-1), and may date from the Neolithic or Early Bronze Age; they are found rather more frequently on the Downs than in the forest. (4) There remain the *petit tranchets*, the 'halberts', the one-barbed, and the triangular varieties. The first has already been described as the typical arrow-head of the Mesolithic hunters, who may have used them as bird-bolts (fig. 11).¹ The type persisted, however, into the Neolithic period and even later, as shown by Professor Grahame Clark,² one typical example being found at Whitehawk Camp.³ But Professor Clark has also shown that the curious varieties sometimes known as 'halberts' and one-barbed arrow-heads (fig. 34, 23-31) are derived from the *petit tranchet*, and that in date they must be referred to the Neolithic 'B' and the Early and Middle Bronze Age. It is possible that the rare triangular type (fig. 34, 22) should also be regarded as a derivative of the *petit tranchet*; at any rate the slight amount of evidence available suggests a relatively late date for this class. The *petit tranchet* derivatives form about 16 per cent of the total, and have been found slightly more often in the forest than on the Downs. (For the mounting of arrow-heads on shafts see plate V, lower.)

The main lesson to be learnt from the distribution of the arrow-heads is that, though living mainly on the Downs, Neolithic and Bronze Age man lost large numbers of arrows while hunting in the Wealden forests—especially in the sparser forests of the sand hills,

¹ *Petit tranchet* arrow-heads have been found in Denmark still attached to their wooden shafts; see Evans, *Stone*, p. 409, fig. 344.

² *Arch. J.*, xci (1935), pp. 32-58.

³ *S.A.C.*, lxxi (1930), pp. 75-6.

rather than the denser oak-woods of the clay lands. The horns and tusks found in his downland dwellings and flint-mines show that his quarry was largely red-deer, roe-deer and perhaps wild boar, and less often the wild ox. Thus the ancient hunting still supplemented pasture, agriculture and industry. It is noteworthy, too, that a special form of arrow-head—the *petit tranchet*—should be almost the only legacy in flint left by Mesolithic man to his more accomplished successors. Does this mean that Mesolithic aborigines were employed as skilled hunters by the herdsmen of the Downs?

Sickles.—Allusion has already been made to sickle-flints being found at Selmeaton and at Cissbury, both being distinguished as sickles by having bright diffuse gloss on both faces adjacent to one edge—the result of prolonged friction against the stalks of corn, which contain silica capable of polishing flint.¹ Several other comparable sickle-flints have also been found in the county. One is a sub-crescentic specimen, almost exactly like that from Cissbury found in brick-earth at Lancing, and bearing slight traces of the characteristic gloss (Worthing Museum); a second (fig. 38) was found by Mr. Barclay Wills at High Salvington and consists of a flake from a ground axe, trimmed to a trapeze-shape, and carrying on its longer edge the typical diffuse lustre. A third, which is oval, comes from Plumpton Plain,² and several others have been described.³ Sickle-flints of these rather nondescript types are probably to be found in much greater numbers but are likely to have been missed by collectors through failure to recognize or appreciate the corn-gloss which is their distinguishing feature.⁴

Only one complete example of the characteristic British sickle of so-called crescentic type (besides three or four fragments) has been recorded from Sussex (fig. 35, 1). This was found below the Downs near Eastbourne in or about 1846⁵ and is a fine example of a type

¹ *Antiquity*, iv (1930), pp. 179–86; ix (1935), pp. 62–6.

² *Ant. J.*, xvi (1936), pp. 85–90.

³ *Ibid.*, xviii, p. 278; xxix, p. 192; *S.N.Q.*, vii, p. 122; viii, p. 189; xiii, p. 197.

⁴ For the development of flint and bronze sickles see E. C. Curwen, *Plough and Pasture* (1946), chap. vii.

⁵ *P.S.A.*, 2nd Ser., iii, p. 210; Evans, *Stone*, 2nd edn., p. 357 and fig. 270. Unfortunately lost when Eastbourne Museum was bombed.

of sickle which is very common in Scandinavian countries, whence it appears to have been brought to Britain by the Neolithic 'B' folk,

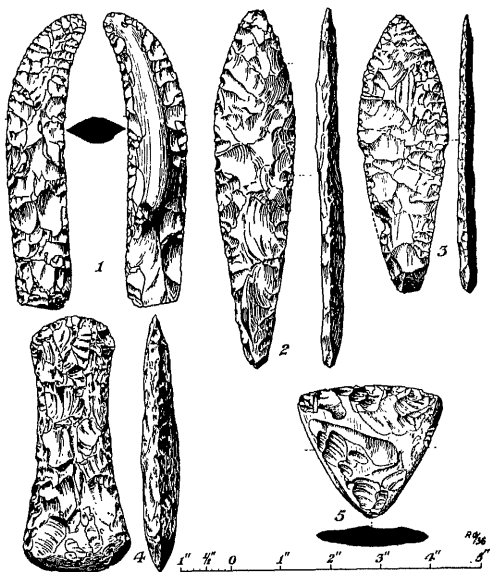


FIG. 35.—FLINT IMPLEMENTS OF EARLY BRONZE AGE TYPES ($\frac{1}{4}$)

as pointed out by Professor Grahame Clark.¹ Many examples show the corn-gloss on their concave edges, but the Eastbourne specimen does not appear to have been used sufficiently to produce this effect.

¹ *P.P.S.E.A.*, vii (1932), pp. 67-81; to the list of examples here given should be added a fragment found at High Salvington by Mr. Barclay Wills of Worthing.

It has, however, the peculiarity of being partially ground on one face in order to remove a protuberance which could not be flaked off without risk of breakage.

The long trimmed flake from Alfriston, shown in fig. 36, 3, is highly suggestive of the Mediterranean type of sickle-flint, but shows no corn-gloss.

Daggers.—Fig. 35, 2, 3, shows two fine examples of flint daggers of a type which was introduced by the 'beaker' folk at the beginning of the Bronze Age.¹ Mr. W. F. Grimes has listed thirteen examples from Sussex, mostly fragmentary, and to these may be added the perfect specimen from the Downs above Parham, which we illustrate. The type may well be an example of the way in which a flint-knapper would make an imitation in flint of an original in metal—whether copper or bronze—and this, of course, implies a relatively late date when metal was in use on the Continent, if not actually in Britain. Some examples, as our No. 3, have notches about midway along each edge to facilitate the attachment of the wooden haft into which the lower half of the implement was inserted, leaving the upper half free as the blade. It is noteworthy that of this type of weapon, unlike the arrow-heads, only two examples have been found in the forest, confirming the view that the many arrow-heads from the forest had been lost in hunting. A group of nine fragments comes from the Downs near the Devil's Dyke.

What must have been a factory for flint daggers was found by the late Dr. John Harley on the Lower Greensand near Pulborough towards the end of last century.² The fact that downland flint had been carried to a Lower Greensand site to be worked into a type of dagger that differs in form from the normal Early Bronze Age type strongly suggests that we may have here a workshop of Mesolithic aborigines surviving in partial isolation during the Early Bronze Age.

Discoidal Polished Knives.—These are made from thin flakes,

¹ *P.P.S.E.A.*, vi (1931), pp. 340–55. The specimens here illustrated are described by the late Dr. Eliot Curwen in *S.A.C.*, lxix (1928), pp. 76–8; lxxiii (1932), pp. 197–8. See also *S.N.Q.*, viii (1940), p. 69.

² *Ant. J.*, xxix (1949), p. 192.

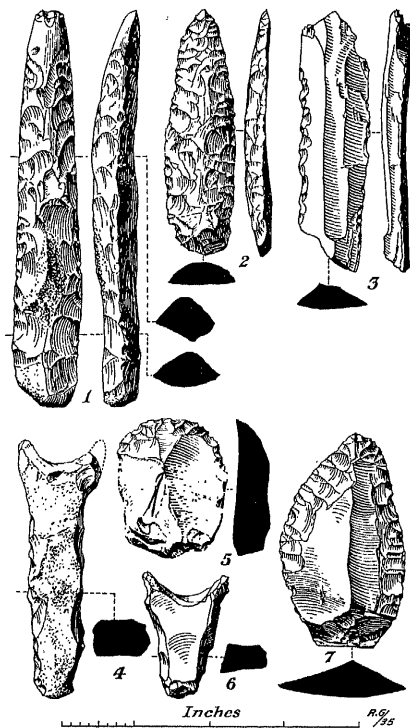


FIG. 36.—FLINT IMPLEMENTS ($\frac{1}{2}$)

roughly circular, triangular, oval or rectangular in shape, with some or all of the edges bevelled by grinding on both faces (fig. 35, 5). Professor Grahame Clark has studied the type, and finds that they are confined to Britain and must be ascribed to the 'beaker' period, that they are likely to have been invented in East Anglia (that is, the area covered by Norfolk, Suffolk and Essex), and that they may have been women's knives used for such domestic purposes as trimming hides¹—perhaps cutting thongs from hides. Twenty-three examples are recorded from Sussex,² all but three of which are from the Downs—a further striking contrast with the arrow-heads. Perhaps the curious bevelled tools shown in fig. 37, 1-2, should be included in this category. No. 1 looks like a combined scraper and leather-knife, while No. 2 has been made from a flake from a polished axe.

Scrapers.—Scrapers are perhaps the commonest flint implements found on the Downs. They are made from flakes of various sizes and shapes, but all have a convex edge steeply trimmed so as to make them suitable for such use as scraping skins after flaying. Such is the use to which the Esquimaux have put similar tools in recent times.³ In time they range from the Mesolithic to the Late Bronze Age; a typical specimen is shown in fig. 36, 5, and a very exceptional form in fig. 37, 5—remarkable for its delicate ripple-flaking in black flint.

Hollow-scrapers.—These are concave scrapers, the shape of which suggests that they were designed for paring down the shafts of spears and arrows. The striking spanner-like form shown in fig. 36, 4, 6 is common in the valley of the R. Cuckmere near Alfriston and Litlington.⁴

Strike-a-lights.—This name is sometimes given to small elongated

¹ *P.P.S.E.A.*, vi (1928-9), pp. 40-54. One of the best examples from Sussex is that figured by Evans, *Stone*, p. 341, fig. 256A.

² To the sixteen specimens recorded by Professor Clark (*loc. cit.*) may be added one from Balcombe in the Brighton Museum, one in the collection of Major Maitland, of Friston Place; one from St. Leonard's Forest, in the possession of Mr. Gurney Wilson; and four from Eastbourne, in the collection of the late Mr. George Gudgeon.

³ See Evans, *Stone*, p. 298, fig. 203.

⁴ See also *S.A.C.*, lxxviii (1927), pp. 273-6.

tools of triangular sections and flat base, some of which have one or both ends worn smooth and polished by use. What this use was is

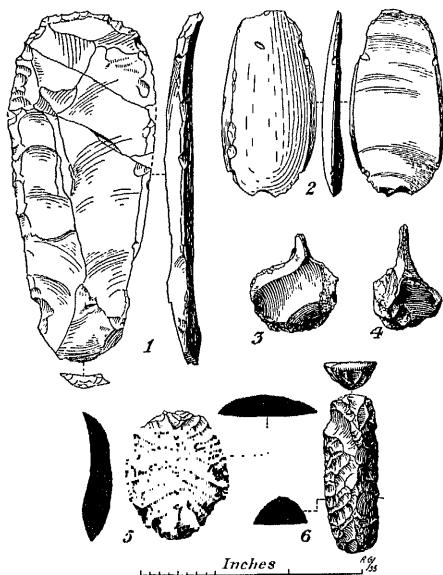
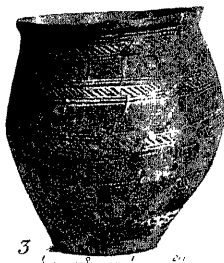
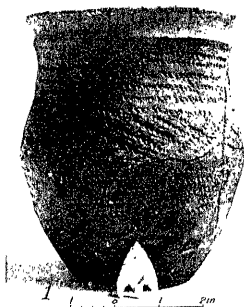


FIG. 37.—FLINT IMPLEMENTS ($\frac{1}{2}$)

not certain, but they may have served for obtaining fire by being struck against crystals of iron pyrites from the chalk (fig. 37, 6).

Plano-convex Knives (fig. 36, 2).—Knives of this type have one face flat and the other delicately worked all over. Professor Grahame Clark has shown that they date from the junction of the Early and



NECKLACE OF BRONZE & LIGNITE BEADS
FROM NECK OF CONTRACTED SKELETON,



PLATE XI.—BEAKERS, TYPE B
(Scales in inches)

with flint arrow-head (B'ton M.);
laven, the Dyke (B.M.); 4, Bronze
11; 5, Kingston Buci (L.M.)

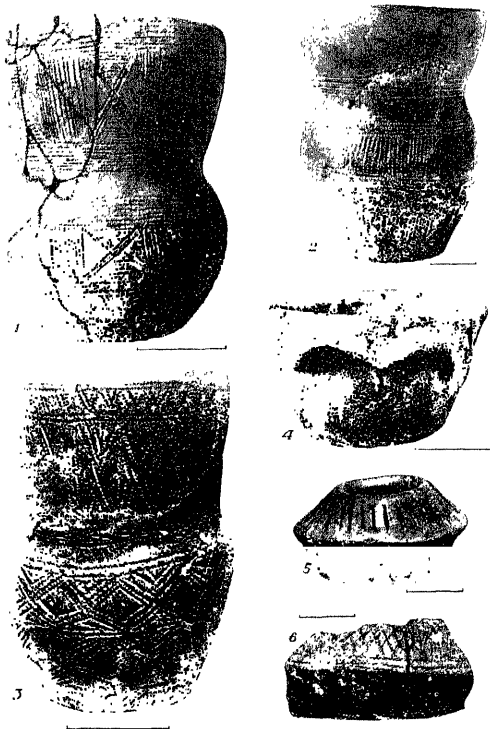


PLATE XII.—BEAKERS, TYPE A, AND PYGMY VESSELS

(Scale of 2 inches in Nos. 1, 3; of 1 inch in Nos. 2, 4-6)

1, 2, Church Hill, Bighton (L.M.); 3, Telscombe Tye (lost); 4, Black Burgh, near the Dyke (Farnham M., Dorset); 5, Lancing Down (B.M.); 6, Firl Beacon (B.M.)

Middle Bronze Age, say, about 1600-1400 B.C., and that they are particularly associated, not with beakers, but with the food-vessel culture of the north of Britain.¹

Borers.—Among the many flints found may be mentioned those with carefully worked points intended for boring wood, bone or leather (fig. 37, 3-4).

Chisel (fig. 36, 1).—This tool, of exceptional form, is clearly a

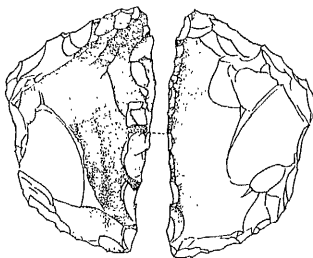


FIG. 38.—SICKLE-FLINT FROM SALVINGTON, SHOWING CORN-GLOSS (INDICATED BY STIPPLING) (B.W.) (3)

development from the partly polished axe, and designed for some specialized purpose such as that of a chisel.

From this brief survey of some of the principal flint implements found in the county we may perhaps be justified in inferring that the period of highest development in flint-work was not so much the Neolithic period as the Early Bronze Age, just prior to the popularization of bronze, and that it is to this period that the bulk of the surface flints may well belong. An inkling of this seems to have been divined by a medical man as long ago as 1867 when he judged that the Mesolithic *tranchet* axe might be a connecting link between the hand-axes of the drift and the 'polished celts of the Bronze period'.²

¹ *Ant. J.*, xii (1932), pp. 158-62.

² *S.A.C.*, xix (1867), pp. 53-7.

Chapter VII

THE COMING OF BRONZE

Father Zeus made a third generation of mortals, a race of bronze, sprung from ash-trees . . . Their weapons were of bronze, their dwellings of bronze, and of bronze their implements; there was no black iron.—*HESTOD*

THE knowledge that copper alloyed with tin in the proportion of roughly nine to one had great advantages over copper alone—being tougher and at the same time more easily melted—spread widely through the ancient world not long before 2000 B.C., though the discovery may have been made and lost in Mesopotamia at an earlier date. Some hold that the secret of bronze was found out by traders who belonged to the second city of Troy and who exploited the copper of Central Europe by way of the Danube valley, and that by them it was jealously guarded as a trade secret. When, however, Troy II fell about 1900 B.C. the secret was one no longer, and the use of bronze began to come into fashion over an ever-widening area, for it was a metal tough enough to compete with flint on the market—a thing which copper could never do.

The date of the first appearance of bronze in Britain is generally given as about 1800 B.C., and the Bronze Age is considered as having lasted from then down to about 500 B.C. when it gave place to the Early Iron Age. For purposes of description it is commonly divided into three roughly equal parts—the Early, Middle and Late Bronze Ages. The present chapter will deal with the first two of these only, because the Late Bronze Age has a special significance of its own, inasmuch as it ushered in a new way of living—settled agricultural life—and as such has more affinities with the Iron Age than with the times that preceded it.

Our knowledge of the Early and Middle Bronze Ages is derived almost entirely from two sources—the graves, and the few bronze implements that are sometimes discovered. Of the dwelling-places

of the people we know almost nothing, which is a great loss, because one can never really know a people until one is able to find them at home, to see for oneself the kind of dwellings they occupied, to study their refuse, and to look out on the same landscape which was familiar to them in their daily life.

Though many discoveries pertaining to this period have been made in Sussex,¹ the county is by no means rich in such material in comparison with that, for instance, from Wessex or Yorkshire. Almost the only visible monuments in the field are the burial mounds, usually called 'barrows' (though on the Ordnance Maps the Latin term 'tumulus' is retained). We have seen that in the Neolithic period the chieftains were buried in elongated mounds or 'long barrows'. During the Early and Middle Bronze Ages the practice was to bury in circular barrows which were of various sizes and types—a practice which fell into comparative disuse after the Bronze Age, but was not entirely given up until the coming of Christianity. It is, therefore, not always possible to say for certain that any given round barrow is of Bronze Age date, though the larger ones certainly are, especially if they are surrounded by ditches.

The barrows of Sussex have been comprehensively studied by Mr. L. V. Grinsell, whose paper on the subject is a monument of indefatigable energy.² He has listed nearly a thousand examples in the county, 95 per cent of which are on the Chalk Downs, mainly in East Sussex, the remainder being situated on the Lower Greensand of West Sussex with one solitary example on the coastal plain at Hove.³

¹ See L. V. Grinsell, 'Sussex in the Bronze Age', *S.A.C.*, lxxii (1931), pp. 30-68; also additions and corrections in *S.N.Q.*, iv (1932), pp. 85-6. These should be supplemented by references to the Bibliographical Index (*s.v.* Bronze Age) published by the Sussex Archaeological Society in their Index Volume to *S.A.C.*, vols. li-lxxv.

² *S.A.C.*, lxxv (1934), pp. 216-75; lxxxii (1940), p. 210; lxxxiii (1941), p. 115.

³ It seems that three large barrows must have stood on the Selsey peninsula, between Wittering and Medmerry, for they are referred to in early charters; the name of the lost Rumbridge is a corruption of Early Middle English *at thrim bergen*, or 'at the three barrows' (*P.N. Sx.*, part i, pp. 88-9).

Ninety per cent of all the round barrows in the county are shaped like inverted bowls or saucers, and hence are called bowl-barrows. In many cases they are surrounded by a circular ditch at the foot of the mound, the latter varying in height from a few inches to 10 feet—most commonly between 1 and 3 feet.

Bell-barrows are impressive but not common; they differ from 'bowls' by having a ledge or berm of comparatively level ground between the foot of the mound and the surrounding ditch, thus giving the whole something of the profile of a church-bell. They are confined to the extreme west of the county, being in reality a Wessex type of which our few specimens are outliers. In date they belong to the later part of the Early Bronze Age, say, round about 1600-1500 B.C.¹ The best known and most accessible examples are two on the top of Bow Hill, five miles north-west of Chichester (plate X). A group of six lie on Monkton Down, Treyford, one of which attains a height of 16 feet—the highest barrow in the county. The rarest examples are a pair of mounds surrounded by a single oval ditch—a 'twin barrow' of the 'bell' class—situated among yew-trees on the north-west brow of Bow Hill, about a mile south-west of the famous Bow Hill barrows.

Other types² include (1) 'platform' barrows which are simply flat-topped mounds with or without a surrounding ditch, of which the best example is on the Lewes race-hill, beside the Lewes-London road and about 350 yards north of Floods Barn; and (2) ring-barrows, consisting of a circular ditch, with or without an accompanying bank, but no mound at all. It is possibly to this class that the earthwork described by Mr. Toms on Middle Brow, near Ditchling Beacon, belongs.³

One may take it that practically all the round barrows in the county have been dug into at some time or another, generally by treasure-hunters, bent on finding mythical gold, or by curio-seekers who in most cases have left little or no record of what they did and

¹ *P.P.S.E.A.*, vii (1933), pp. 203-30.

² For barrows in general see *Antiquity*, I (1927), pp. 419-34, and L. V. Grinsell, *The Ancient Burial Mounds of England* (1953).

³ *S.A.C.*, lxx (1929), pp. 206-9.

found. Where such records have been preserved they consist for the most part of monotonous references to urns and bones and ashes with an irritating lack of detail, and so much of the material found has since been lost. With a few notable exceptions which will be described presently the barrows of Sussex have contributed regretably little to our knowledge of the Bronze Age.

The division of the period in question into two parts, viz. the Early and Middle Bronze Age, is a natural and convenient one. Before discussing them in greater detail it will be well to take a glance at their principal contrasting features.

The Early Bronze Age is characterized by—(1) simple burial (inhumation) of the dead, generally in a contracted attitude; rarely cremation; (2) the occasional discovery of vessels of 'beaker' type buried with the dead to contain food or drink for the next world; (3) the burial of weapons, ornaments, &c., for use in the next world; (4) the rarity of bronze and even greater rarity of copper; and (5) abundance of fine flint-work.

The Middle Bronze Age is characterized by—(1) cremation of the dead; (2) the frequent deposition of the ashes in cinerary urns which were provided for this purpose and not for containing food or drink; (3) the burial of weapons, &c., less frequent; (4) bronze becoming more common; and (5) the lack of flint implements, other than certain types of arrow-heads, which can be shown to be typical of this period.

THE EARLY BRONZE AGE

The first appearance of bronze in this country seems to have coincided with the arrival of a new race of people of different physical features from those of the Neolithic natives, and with different habits and possessions. These people are usually known as the 'beaker-folk'; from the name given to the characteristic pottery vessel which they introduced. Their average stature was several inches taller than that of the Neolithic folk, and they were more robustly built, with broad, short heads and rugged faces which contrasted with the long, narrow heads and rather weak faces of the

people they found in possession. Their movements have been studied by examining the distribution of their 'beakers' not only in Britain but throughout a large part of Europe, and while the question of the origin and diffusion of this pottery is still debated, it is clear that our invaders reached south-eastern England mainly from the lower Rhine districts. It is unlikely that it was these people who brought us our knowledge of bronze, for it must be remembered that Ireland received that knowledge without the agency of the beaker-folk. It is more probable that the knowledge of bronze may have reached Britain from Ireland shortly after the beaker invasion.

Beakers are finely made vessels with thin walls of pinkish-red clay, often profusely decorated with impressed patterns which tend to be arranged in horizontal zones. They are considered to have served as drinking vessels and are entirely unlike any pottery previously seen in this country; they are also the first vessels to have flat bases. In Britain we have to distinguish two main types of beaker—A and B—which have, broadly speaking, different distributions and different classes of objects associated with them.¹ The 'A' type has a globular body sharply marked off by a constriction from a funnel-shaped neck which is of roughly the same height as the body (plate XII, 1-3). The 'B' type has a more egg-shaped body which gradually passes upwards into a gently out-turned rim, with little or no constriction or neck (plate XI). A further type 'C', which is a short-necked variety of 'A', does not concern us in Sussex. It is the 'A' beakers which have the most profuse and elaborate decoration as a rule. No examples with handles have been found in the county, though they have occasionally occurred elsewhere.

'B' beakers predominate in the south-eastern corner of England whither they have evidently come from the Netherlands. Farther north and west 'A' beakers predominate, and it has been suggested that those who brought them arrived at the mouths of the rivers that now open into the Wash, and penetrated south-westwards to Wessex. In connexion with this it must be recalled that at the period in question much of what is now the North Sea was still dry land.

¹ *Antiquity*, v (1931), pp. 415-26.



FIG. 39.—DISTRIBUTION OF REMAINS OF THE BEAKER PERIOD

In Sussex twelve beakers have been recorded, besides a few fragments. As might be expected from what has been said above, eight of these are of 'B' type, and four only conform to the 'A' standard. Eleven of these vessels come from the Downs, and one from the coastal plain at Kingston Buci, none having been found in the Weald or in the river valleys. It is a curious thing that all the known specimens come from the area between the rivers Arun and Ouse (fig. 39).

Only one habitation site of this period has been at all certainly located, and that overlay the Neolithic remains in Whitehawk Camp on the Brighton race-hill.¹ A small pit had been dug in the chalk and quickly refilled with clean chalk rubble containing a single fragment of a flat-bottomed vessel. Over the mouth of the pit were the ashes of a hearth containing a number of pieces of broken beakers of uncertain type, while for several feet round the ground was strewn with other fragments, especially in the half-filled ditch of the old Neolithic camp. The section of the filling of the ditch here was instructive because it showed that between the layers of Neolithic pottery below, and of Early Bronze Age pottery above, there existed a foot or more of fine chalk silt, indicating that a considerable period of time must have elapsed between the desertion of the site by the Neolithic people and the arrival of the beaker-folk. In addition to the shards of beaker there were a few pieces of thicker and coarser pottery ornamented with paired finger-nail impressions arranged in vertical rows. This ware, which is clearly of the same age as the beakers, is of rare and unusual appearance² but corresponds to the vessel found in association with a beaker at the Church Hill flint-mines, Findon, as already described (p. 116 and fig. 27). In this connexion it is important to note that the curious form of the rim and neck of the Church Hill (Findon) beaker, with its groove between two ridges, has its counterpart in one of the beaker fragments from Whitehawk,³ as well as in a beaker found with a barbed flint arrow-head near the Ditchling Road, north of Brighton (plate XI, 1).⁴

¹ *Ant. J.*, xiv (1934), pp. 111-12, 119-21, and figs. 4, 41-71.

² For a discussion of this pottery see *P.P.S.*, July 1936, pp. 19-23.

³ *Ibid.*, fig. 55 (p. 119).

⁴ *Ant. J.*, ii (1922), pp. 55-6.

Mr. W. F. Grimes, in discussing the Church Hill (Findon) beaker (fig. 26) in a letter to the author, considers it to be one of a fairly well-defined group which is found in Kent and Sussex and the coastal area of Essex and Suffolk. Having been found inverted over a cremation-burial, after the manner of the Middle Bronze Age cinerary urns and unlike that of Early Bronze Age beakers,¹ this example may be referable to the transition period from Early to Middle Bronze Age, thus dating the group as a whole. Mr. Grimes considers that the type may be a late arrival from Holland, and its association on two sites with the thicker and coarser ware already

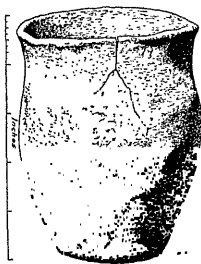


FIG. 40.—BEAKER FROM HEATHY BROW (IFORD AND RODMELL) (E.C.) ($\frac{1}{2}$)

described is noteworthy. We may perhaps, therefore, infer from this that the Whitehawk beaker site also belongs to a relatively late date in the Early Bronze Age.

The occurrence of the fragments of several beakers on a domestic site, as that at Whitehawk, shows that these vessels were not merely funerary objects buried with the dead, but that they were actually the domestic ware of the time—probably drinking cups for quaffing beer or mead. An actual sample of Bronze Age beer seems to have been recovered in Denmark, where the body of a woman was accompanied by a wooden bucket containing the dried sediment of beer brewed from wheat and honey and flavoured with cranberry

¹ Cf. Greenwell, *British Barrows* (1877), fig. 120, pp. 240-1.

and bog-myrtle.¹ This no doubt explains why beakers were so often buried with the dead, as well as guaranteeing a respectable antiquity for the Teutonic habit of beer-drinking.

The remaining beakers in Sussex are all from burials. One from Beggar's Haven, near the site of the former Dyke railway station, accompanied a skeleton, round the neck of which were found beads of lignite and tubular beads of bronze (plate XI, 4). Another from the Ditchling Road, north of Brighton, was accompanied by a barbed flint arrow-head (plate XI, 1), while in front of the mouth of the skeleton was a heap of snail-shells. In this case the deceased was provided with food as well as drink for the next world. The four 'A' beakers come, one from a barrow near Telscombe, two from Church Hill, Brighton, near St. Nicholas's Church, where there

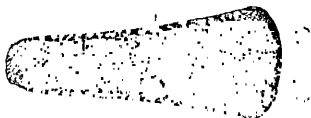


FIG. 41.—FLAT AXE FROM PEVENSEY (?) (L.M.) ($\frac{1}{3}$)

were formerly at least two barrows (plate XII, 1-3),² and one from Park Brow (Sompting).³ At the Brighton site the larger beaker was found with an adult skeleton, and the smaller with that of a child.

The earliest metal tools were axes of copper or bronze modelled more or less on flint axes and intended to be similarly hafted in a cleft stick (fig. 41 and plate XIV, *lower*). The edge was sharpened and tempered by hammering, which caused it to be splayed out

¹ At Egtved in Jutland (1929). Information from Professor A. W. Brøgger, *Sigd, Ljaa og Snidill av det Norske Jordbruks Ophav* 1933, p. 11. The Greek explorer Pytheas recorded the same habit in N.W. Europe in the fourth century B.C. (Strabo, IV, 5, 5).

² Rev. J. Skinner's Journal (1815), B.M. Add MSS. No. 33649, fol. 145, 151 (information from Mr. Grinsell). The remaining beakers from Sussex are listed by Mr. Grinsell in *S.A.C.*, lxxii (1931), pp. 37-40. For beakers in general see Hon. J. Abercromby, *Bronze Age Pottery* (1912), vol. i.

³ *S.N.Q.*, vii (1938), p. 58.

wider than the body of the axe, and, as we have already seen, some flint axes came to be made in imitation of the shape of these early metal tools by people who perhaps desired but could not afford the latter (fig. 35, 4). Of these simple flat celts Grinsell lists nine examples from Sussex;¹ four of these come from the Downs, four from the Weald, and one from the coastal plain at Selsey, while three of them are said to be of copper and three others have been proved to be of bronze. A tenth specimen is also recorded from the foot of the Downs at Eastbourne.²

We have already seen that most of the implements used at this period continued to be made of flint, the working of which now reached the highest level of technical skill, as exemplified by the arrow-heads, daggers, knives, axes and other tools which we reviewed in the last chapter.

Later in the Early Bronze Age the flat axe (or celt) underwent development whereby the edge became more widely splayed, while the body became narrower and acquired side-flanges designed to hold the tool more securely in its split-wood haft (plate XIV). Grinsell lists eight specimens from Sussex, six from the Downs and two from the coastal plain³—all probably of bronze. Some of these belong to the early part of the Middle Bronze Age, after which the type developed into the palstave, as will be seen later. A hoard of four flanged axes, with faint incipient stop-ridges, was found by Major Maitland below the turf covering a prominent ditched bowl-barrow on Combe Hill, Jevington, near Eastbourne (plate XIV). The fact that three of the axes had been broken across the middle suggests that they may have formed a votive offering placed there in honour of the ancient hero for whom the mound was raised. In fact, this barrow seems to have been a shrine of some sanctity as late as the Roman period, for many Roman coins and pots were found buried in and around it.⁴

Other objects characteristic of the Early Bronze Age, such as archers' wrist-guards and V-perforated buttons, have not been recorded from the county, which is not surprising as they belong to

¹ *S.A.C.*, lxxii (1931), pp. 40-2.

² *Ibid.*, xxxvii (1890), p. 112.

³ *Ibid.*, lxxii (1931), p. 46.

⁴ *S.N.Q.*, viii (1940), p. 108.

the culture of the 'A' beakers which are uncommon in the district. The earliest metal daggers are also absent, nor is there any trace of the 'food-vessel' as it is known in the north of England.

Passing on, then, to the closing phase of the Early Bronze Age, we have to record two important burials in barrows, both near Brighton. The first is the Black Burgh, an inconspicuous mound near the Dyke road, three-fifths of a mile south of the Dyke. This was opened in 1872 by General Pitt Rivers, who found a wide and deep grave cut into the chalk below the centre of the mound, containing the skeleton of a woman, 5 feet 6 inches in height. With her were found some shale beads, a bronze pin, a small earthenware cup and, curiously enough, a bronze knife-dagger.¹ The latter is not of the earliest type, and is similar to that shown in plate XIII, 3. The blade is an elongated triangle with a midrib and fluting parallel to the edges, and it was secured by means of rivets to a handle that had been of wood. The little earthenware cup (plate XII, 4) is decorated with what looks like a pair of eyebrows—a conventional representation of the human face which, though not uncommon on pottery in the Aegean area, as at Troy, and also in Denmark and Spain, is possibly unique in Britain, though it has been found on chalk drums of this period in Yorkshire.²

Of greater interest is a large barrow that once stood in Hove—the only one recorded from the coastal plain.³ It was situated in what is now the garden at the back of No. 13, Palmeira Avenue, and it used to be visited every Good Friday by hundreds of young people who used to play 'Kiss-in-the-ring' and other games—a custom which no doubt had its origin in very ancient ceremonial observances. This barrow was destroyed in 1856-7 when building operations were active in the neighbourhood, but fortunately its contents were preserved with greater care than was accorded to many in those days. According to the Rev. J. Skinner, who examined it in 1821, the

¹ *J.R.A.I.*, vi (1877), pp. 279-86. The objects found are in the Pitt Rivers Museum, Farnham, Dorset.

² *B.M. Bronze Age* (1920), pp. 80-1.

³ *S.A.C.*, ix (1857), pp. 119-24; Abercromby, *B.A. Pottery*, ii, p. 30; Curwen, *B. and H. A.*, ii (1924), pp. 20-8.

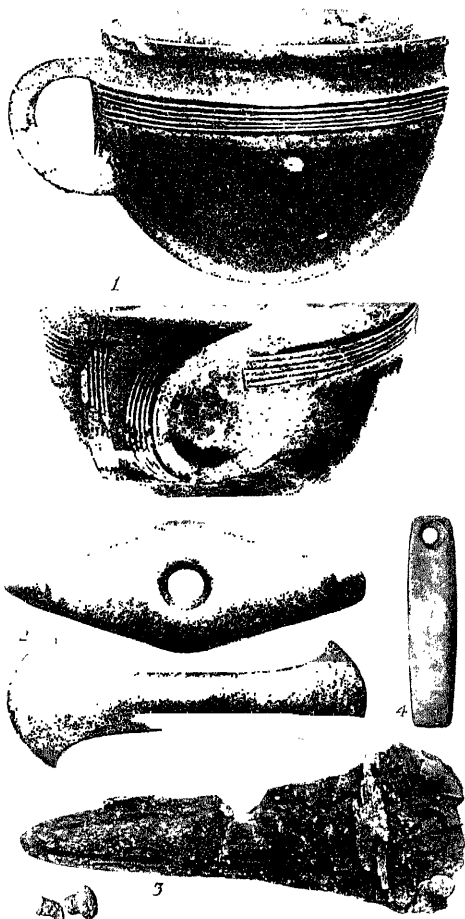


PLATE XIII.—OBJECTS FROM THIL HOVE BARROW

1, Amber cup ($\frac{1}{2}$); 2, Stone axe-hammer ($\frac{1}{2}$); 3, Bronze dagger with rivets for handle ($\frac{1}{2}$);
4, Whetstone ($\frac{1}{2}$) (B'ion M.)

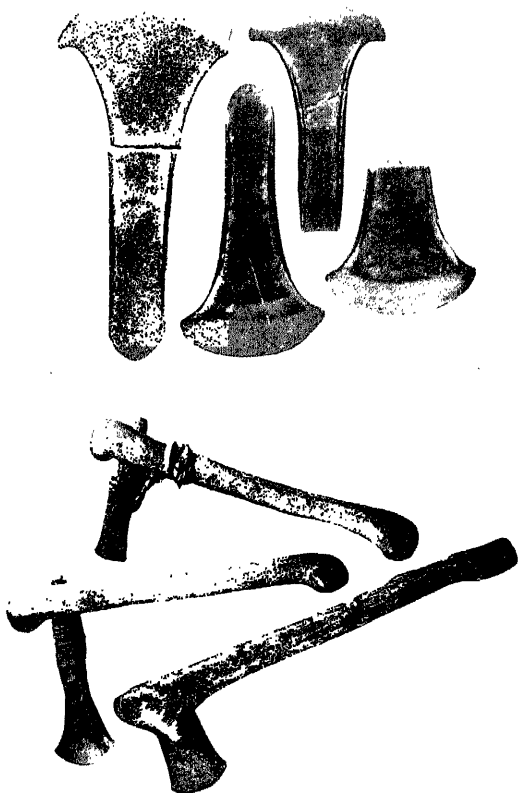


PLATE XIV

Above: COMBE HILL HOARD OF FLANGED AXES. (L.M.) ($\frac{1}{3}$)

Below: HOW BRONZE AXES MAY HAVE BEEN HAFTED

From below up: flat axe, palstave and socketed axe (L.M.)

mound was 12 feet high and 180 paces in circumference, which, if one may judge the length of his pace by the dimensions he gives of other earthworks, implies a diameter of 200 feet for the barrow—probably an overestimate.¹ At a depth of 9 feet below the top—probably lying on the old ground surface—a coffin of oak was found. This was 6 to 7 feet long, and lay east and west. Besides fragments of decayed bone—whether cremated or not is uncertain—the coffin contained an amber cup, a stone axe-hammer perforated for hafting, a bronze dagger, and a small whetstone (plate XIII).

The cup, which is the most prized object in the Brighton Museum, must also have been the most treasured possession of the ancient chief who thought to carry it with him to the world of shades. It has been carved out of a single piece of red amber, which was at least 5 inches long before being worked. It has a round base and a single handle, ornamented with parallel grooves, as shown in the accompanying photographs, and its capacity is about half a pint. The only decoration on the body of the cup consists of a band of raised lines below the lip; these stop short of the handle on each side, the termination being marked by a vertical incised line. It is considered that this cup may have been turned on a pole-lathe, a primitive implement which, by spinning the object alternately in opposite directions, can be made to leave a segment unworked, from which to carve the handle afterwards. Only one other amber cup has been found in Britain, and that comes from the Clandown Barrow, near Dorchester (Dorset), while others of similar shape to the latter were made of shale.² A wooden cup of the same form as the Hove specimen was found with a bronze dagger and brooch at Guldhøj in Denmark.³

The axe-hammer is of some volcanic stone and is one of the finest examples of its kind found in Britain.⁴ It is more likely that such an implement was a symbol of office, like our maces and state swords, rather than an actual tool or weapon for ordinary use. Its possessor

¹ B.M. Add. MS. No. 33658 (1821), fol. 34.

² *Wilts. Arch. Mag.*, xlv (1928), pp. 111-17.

³ Madsen, *Fund af Eggekisten fra Bronzealderen i Danmark*, pl. xiv, 3; xv, A10, A13.

⁴ Stone axe-hammers: *Arch.*, lxxv (1926), pp. 77-108.

may have been the chief of all these parts, and this his sceptre. At any rate the analogous implements belonging to this period in Scandinavia formed the basis of the legends concerning the mighty hammer of Thor the Thunderer.

The knife-dagger resembles that from the Black Burgh, and was fastened to its handle with three rivets. It also had a wooden sheath, the marks of which can be seen adhering to the blade. The little whetstone was no doubt carried suspended by a cord, and used to sharpen the dagger when there was any special business pending. Its surface is glossy from use.

Ancient amber was derived from the shores of the Baltic, and this fact, combined with the Scandinavian associations of the cup and the axe-hammer, indicates that the Hove chieftain was either of Scandinavian origin, or had trade connexions with those parts. The dagger, on the other hand, is more likely to have come from the west.

It is possible that it is to this period that one should refer a bronze pin that was found with a skeleton in a barrow on Firle Beacon in 1820 (fig. 45). The accounts of its discovery are deplorably vague, but it appears from the *Journal* of Dr. Gideon Mantell that it was found with a skeleton, not a cremation, and that it was at that time in the possession of a Mr. Wisdom of East Hoathly.¹ A month later further digging brought to light a small pottery vessel with what appears to have been another skeleton, whether or not in the same barrow is left uncertain owing to the loss of a page in the *Journal*.² Horsfield's account is therefore inaccurate, but he illustrates the pin from a drawing made by Mantell himself,³ and this and another sketch in the *Journal* are the only records that have survived, for the pin itself has eluded search and inquiries, and is not in the Mantell Collection at the British Museum. From the sketches the pin bears a close resemblance to one from Camerton, Somerset,⁴ which appears to be of a type belonging to the Aunjetitz culture of Central

¹ E. C. Curwen, *Journal of Gideon Mantell* (1940), p. 16.

² *Ibid.*, p. 17.

³ Horsfield, *Lewes*, i, p. 48 and plate iii, 12.

⁴ Figured by Evans, *Bronze*, p. 369, fig. 456.

Europe (1700-1300 B.C.).¹ It is therefore possible that this pin witnesses to contact with Central Europe during our Early Bronze Age, but it is also possible that the specimen in question might be Saxon. Greater certainty might be achieved if the pin itself could be found.

It must not be supposed that every man or woman had a barrow raised over them when they were dead. Skeletons are frequently found buried in a contracted attitude without grave-goods or memorial, and these probably represent the common people of the time before the introduction of cremation.

We may now sum up the scanty evidence as to the life of Early Bronze Age man in Sussex by saying that, though largely composed of new-comers from Holland, who blended with the Neolithic natives, the people seem to have lived very much as their predecessors had done; being, no doubt, nomad herdsmen, they continued to live on the Downs and perhaps also on the coastal plain, mining flint for axes in the neighbourhood of the old Neolithic mines, and hunting and cutting wood in the Wealden forests where they lost many arrows and a few axe-heads. They were large-boned beer-drinkers and skilled archers; they used mainly flint for their tools and weapons, the fortunate few having axes and daggers of bronze; their women had necklaces of shale and bronze beads, and they buried their dead in contracted attitudes in expectation of a future life in which their needs would be much the same as those of this life.

THE MIDDLE BRONZE AGE

The change from the Early to the Middle Bronze Age was a gradual one, not marked by any notable event or fresh invasion, but rather by a change of attitude towards death, whereby cremation slowly took the place of inhumation, with a diminished tendency to bury objects for use in the next life. This was accompanied by a gradual increase in the supply and use of bronze, and perhaps by a tendency towards a wetter climate. We may provisionally date the

¹ Abercromby, *Bronze Age Pottery*, ii. p. 63, quoting Lissauer in *Zeitschrift für Ethnologie*, 1907, p. 794, and figs. 22, 23. Cf. Childe, *Danube*, pp. 230, 437. (Information from Professor Stuart Piggott.)

period as extending from about 1500 or 1400 B.C. down to about 1000 B.C.

Hardly any dwelling-sites of this period have been certainly identified in Britain, unless it be that the localized sites on the Downs where flint implements are found in some quantity should be regarded as camping-sites of the Bronze Age. The fact that none of these sites has yielded pottery might be due to the absence of proper excavation in search of it; on the other hand, a nomadic people tends to use vessels made of less fragile material than pottery, such as wood or leather, while frequently returning to the same camping-sites in their successive wanderings.

At all events pottery was commonly used for cinerary urns to contain the ashes of the dead which were interred in barrows. These urns are of a special type with overhanging rims or collars (or 'crowns', as Professor Hawkes proposes to call them), generally ornamented with straight-line patterns made by impressing a twisted cord on the clay while it was wet (plate XV). Most of the ornament was on the collar or crown; occasionally it extended also to the upper part of the body of the vessel. Considerable numbers of these urns have been found, but relatively few preserved.¹

These urns were evolved from the northern British type of food-vessel which had been buried with the body to contain food for the dead. The food-vessels were in their turn derived from the old Neolithic 'B' bowls. The change of usage from food-vessel to cinerary urn was a very radical one, and some very cogent force must have been at work to break through the stubborn conservatism of primitive funerary tradition. Sometimes cinerary urns were buried, not as 'primary interments' in new barrows, but as 'secondary interments' in barrows that had been raised at an earlier date, and which were looked upon as 'consecrated ground' by virtue of the ancient heroes buried therein. Middle Bronze Age cinerary urns have been found mainly on the Downs, but also on the Lower Greensand ridge of West Sussex.

¹ L. V. Grinsell gives a list of urns from Middle and Late Bronze Age burials, the old records not always distinguishing between the two kinds; *S.A.C.*, lxxii (1931), pp. 63-7; lxxv (1934), pp. 233-4.

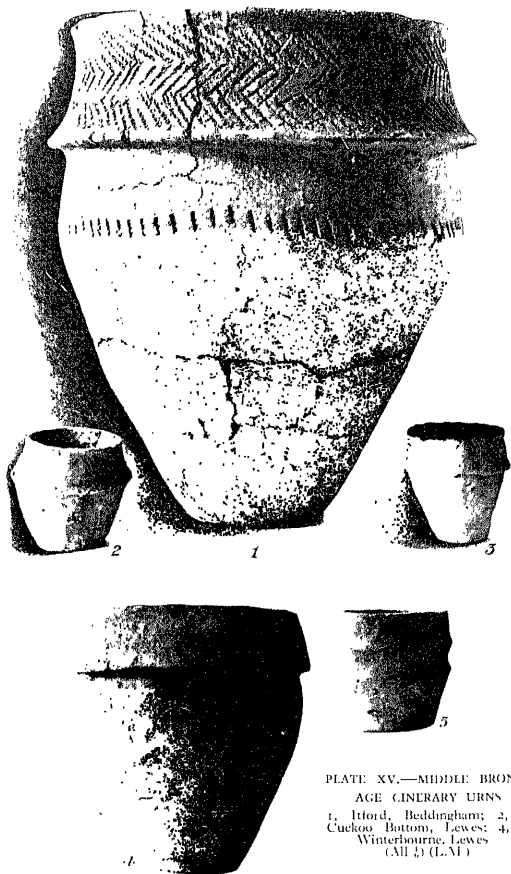


PLATE XV.—MIDDLE BRONZE
AGE CINERARY URNS
1, Itford, Beddingham; 2, 3,
Cuckoo Bottom, Lewes; 4, 5,
Winterbourne, Lewes
(All 1) (L.M.)



PLATE XVI.—PART OF THE BLACKROCK HOARD OF BRONZES

(B'TON M., C. T. TRECHMANN LOAN)

1, Blade of dirk (1); 2, Palstave, type A (one of eight) (1); 3, Spiral ring (4); 4, Brighton loop (one of three) (1); 5, Armlet (one of two) (1); 6, Bronze handle for dirk (1); 7, Nos. 1 and 6 fitted together to show effect, though they do not belong to one another.

Another class of pottery occasionally found in connexion with these burials consists in small vessels of various shapes, sometimes having the walls perforated with numerous openings, making them unsuitable for holding food or drink. That they were for burning incense, as has been often supposed, is scarcely likely, though they may have been intended for carrying sacred fire. One such from Lancing is in the British Museum (plate XII, 5), while a similar specimen was found on Clayton Hill in 1805 (fig. 44), and close to the same spot in the following year a man digging for flints found an urn in which was a pendant of blue faïence or porcelain (fig. 43, 1).¹ The urn, being broken, was unfortunately not preserved, and it is important to note that the pendant was found in it, and not in the smaller vessel (miscalled 'incense cup'), as has so often been asserted by later writers. A closely similar pendant (fig. 43, 2) was found in a cinerary urn in a barrow above Ox-settle (or Oxteddle) Bottom, north of Mount Caburn, near Lewes, accompanied by a number of beads of jet and amber, a bronze spiral finger-ring, and a green porcelain or faïence bead of segmented form² (fig. 42). What Horsfield calls the 'small skeleton' of a man who, he says, 'must have been nearly six feet four inches high', was found in the same mound in an extended attitude, and may therefore have been a Saxon secondary interment.³ The urn, part of which is preserved at the British Museum (fig. 42), is of biconical form, and therefore of relatively late type.

The discovery of these faïence pendants and segmented beads in burials of the British Bronze Age is a very remarkable thing, and one which has been observed in other counties, particularly in Wiltshire. It has long been held that they were of Egyptian or Cretan origin, as the art of making faïence or porcelain is not known to have been practised in any nearer part of the ancient world at about that time. The most recent authoritative views are those of the late

¹ Horsfield, *Lewes* (1824), pp. 43-4; *S.A.C.*, viii (1856), p. 285.

² *Ibid.*, p. 47; Franks, *Horae Ferales*, plate xxv, 9; *Arch.*, xliii (1871), p. 497 and fig. 192; Abercromby, *B.A. Pottery*, ii. pp. 27, 65-8.

³ Gideon Mantell says in his *Journal* (*op. cit.*, pp. 1, 2) that there were skeletons, accompanied by knives, which makes it certain that they were Saxons.

Mr. H. C. Beck, F.S.A., and Dr. J. F. S. Stone, who consider that no decisive answer to the question is yet possible on the available evidence. They say, however, that from their studies two conclusions emerge: (1) These beads are almost peculiar to Britain, and they have only found three Egyptian segmented beads that resemble the British specimens in all respects. These date between 1400 and 1180 B.C. (2) On the other hand, from their sudden appearance and disappearance in Britain, and from the fact that there is no evidence of glass manufacture here in Bronze Age times, one can only conclude that they came from some foreign source. Egypt made glazed faïence from the remotest times—a very specialized manufacture which was unlikely to appear suddenly in a fully developed form elsewhere. Similar, but not identical, beads were known and made in Egypt for a very long period. The distribution of faïence objects in general, and not of the specific types of British beads only, very definitely favours a Mediterranean route and affords a connecting link with the eastern Mediterranean. These facts amongst others weigh, they believe, very heavily in favour of an Egyptian origin, and of a date ranging between 1400 and 1150 B.C.¹

The very cautious opinions outlined above confirm, so far as they go, the provisional dating of our Middle Bronze Age.

The flanged bronze axe gradually developed into the palstave—the characteristic axe of the Middle Bronze Age. The flanges became more pronounced and a stop-ridge was developed between them, to prevent the head from splitting the haft by being driven back into it.

Three principal stages of development of the palstave are convenient to recognize, and for the purposes of this book we will call them A, B and C. Each stage merges imperceptibly into the next, but only the earliest appeared during the Middle Bronze Age.

In the first (A—fig. 46, 1) the stop-ridge is not more prominent than the flanges, while the latter continue to run practically the whole length of the tool, both upwards to the butt, and downwards towards the cutting-edge. A central midrib is often found below the stop-ridge to give additional rigidity. This type appeared during the

¹ *Arch.*, lxxxv (1935), p. 203.

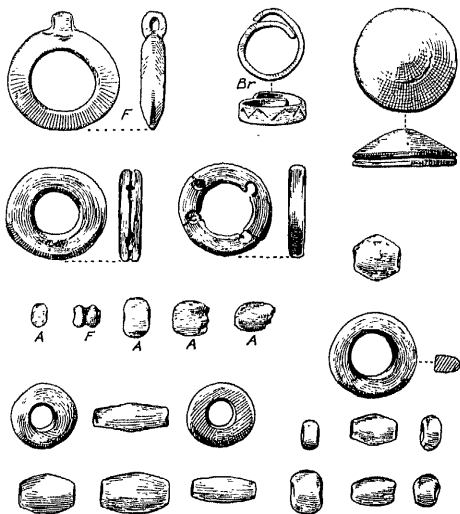
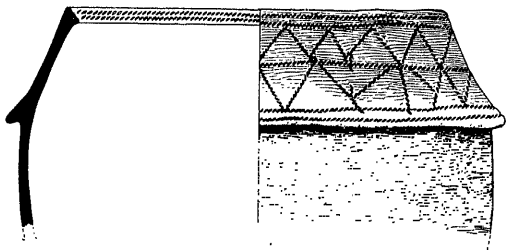


FIG. 42.—URN AND CONTAINED OBJECTS FROM OXTEDDLE BOTTOM,
NEAR LEWES (B.M.)

Material: F, faience; A, amber; Br, bronze; all others jet. (Urn, §; small objects, §)

Middle Bronze Age, but continued well into the Late Bronze Age, perhaps as late as the eighth century B.C.

The second stage (B—fig. 46, 2), which belongs to the Late Bronze Age but for the sake of comparison will be described here, is distinguished by the absence of flanges below the stop-ridge, where they no longer perform a useful function, though they continue upwards almost to the butt. The body of the axe is thickened below the stop-ridge, so that a midrib is no longer needed, but some lines cast in relief are usually found, sometimes arranged like a trident and reminiscent of the defunct flanges and midrib, or at other times forming a parabolic curve, as in fig. 46, 2, or else a combination of both. Occasionally a loop or ring is found at the side of

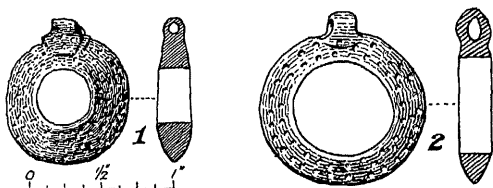


FIG. 43.—FAÏENCE PENDANTS ($\frac{1}{2}$)

1, Clayton Hill (L.M.); 2, Oxtedle Bottom, Lewes (B.M.)

the implement to enable it to be secured to its haft by means of a thong, but such loops are rare in this stage.

The third stage (C—fig. 46, 3) also belongs to the Late Bronze Age. Now the stop-ridge is the dominating factor, being very bold and prominent, while the flanges curve upwards from it, extending only about half the distance to the butt. A loop for attachment by a thong is normally present, while the part of the axe below the stop-ridge is thick and narrow and usually unornamented, unless by a series of parallel vertical lines cast in relief. The cutting edge is less splayed than in earlier types.

Daggers were now becoming longer and narrower, and developing into dirks or rapiers (fig. 47, 3).

The socketed spear-head now appears, having been developed

from a dagger mounted on a handle of exaggerated length to enable its possessor to strike his enemy at a safe distance for himself (fig. 47, 1, 2). Of ten specimens recorded by Grinsell¹ three may belong to this period, as indicated by the pair of small loops on the flanks of the socket which enabled the head to be secured to the shaft by a

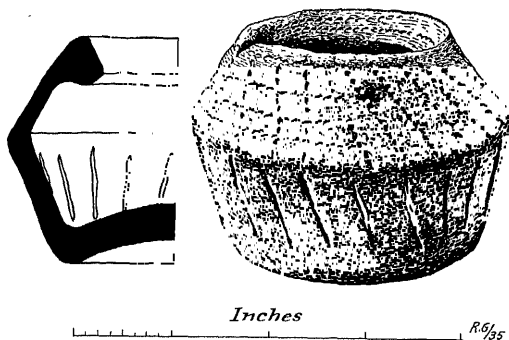


FIG. 44.—PYGMY CUP, CLAYTON HILL (L.M.) ($\frac{3}{8}$)

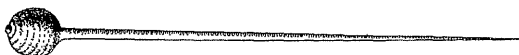


FIG. 45.—BRONZE PIN, FIRLE BEACON (LOST)

After Horsfield

(Scale uncertain, perhaps $\frac{3}{4}$)

thong (fig. 47, 1). All these come from the Downs. A fourth, from below the Downs at Bramber, is of a slightly later type having the loops moved up so as to coalesce with the base of the blade (fig. 47, 2).

In general, bronze implements during this period were fewer in number and variety than was formerly thought, and the scarcity of datable objects found with them makes it difficult to be sure of a

¹ S.A.C., lxxii (1931), pp. 61-2.

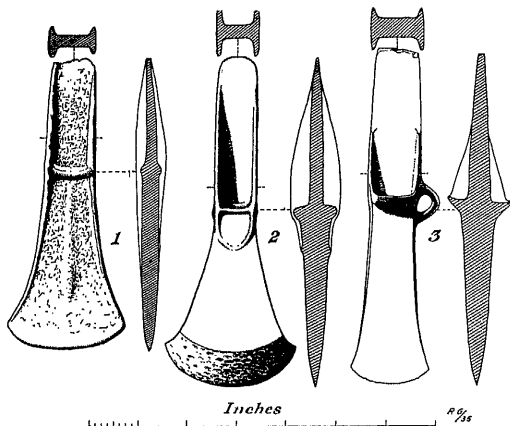


FIG. 46.—PALSTAVES ($\frac{1}{2}$)

Type A, from Horsted Keynes; 2, Type B, from Clapham (?), (E.C.); 3, Type C, from Brading Road, Brighton (B'ton M.)

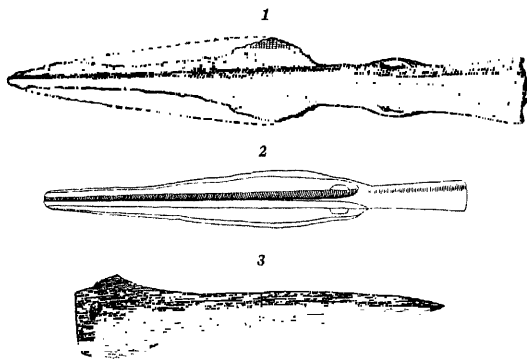


FIG. 47.—SPEAR-HEADS AND DIRK

1, Looped spear-head, Stump Bottom, Sompting (Major Tristram) ($\frac{1}{2}$) (*Antiquaries Journal*); 2, Spear-head with loops at base of blade, Bramber ($\frac{1}{2}$) (drawn from a cast in L.M.—original lost); 3, Dirk from Heyshott (Ashmolean M., Oxford)

Middle Bronze Age date in all cases. The tendency now is to relegate to the Late Bronze Age many implements and hoards that were formerly assigned to the Middle Bronze Age.

CONCLUSIONS

The picture which we have here attempted to draw of life in the Middle Bronze Age is distressingly inadequate, and we are forced to admit that while we know something of their funeral customs, we know very little indeed of their manner of life. There is, however, no reason to think that they departed materially from the pastoral and semi-nomadic habits of their immediate predecessors¹ but the distribution of their burials gives some ground for thinking that they may have spread into the Weald to some extent, as well as on to the coastal plain, while still living for the most part on the Downs. Such bronze tools and weapons as were used were simple and undeveloped, requiring no great skill in casting; bronze itself must still have been scarce, the majority of people still relying upon flint. Stagnation, too, is evident in the scarcity of signs of improvement of old types or the development of new types of bronze implements. All this is in marked contrast with what is to follow.

¹ Some agriculture was certainly practised, as we know from the discovery of bronze sickles in other counties, and occasionally from the finding of grain-rubbers in barrows of this period.

Chapter VIII

FARMERS AND BRONZE-FOUNDERS

'Bread', says he, 'dear brothers, is the staff of life.'—SWIFT, *Tale of a Tub*

WE have seen reason to believe that the principal means of livelihood of the inhabitants of Sussex from the Neolithic period down, probably, to the end of the Middle Bronze Age—something like 1,500 years—was the rearing of cattle, sheep, pigs, and latterly horses, while corn-growing, industrialism and hunting were subsidiary, and are likely to have been such as were compatible with a nomadic life. This we have called the pastoral stage, and it seems to have been a period of increasing cultural stagnation.

From about 1000 B.C. significant changes begin to appear, sufficient to justify the classification of the next five centuries as a separate period of considerable importance, distinguished as the Late Bronze Age. These changes reflect very unsettled conditions on the Continent which were to have far-reaching consequences for these islands in new ways of living and new industries, largely brought about by an influx of fresh blood.

Professor Hawkes now divides the Late Bronze Age into three stages:

(1) In the first, provisionally dated 1000–800 B.C., and conveniently designated L.B.1, the population remained the same, living apparently as they had always lived during the Middle Bronze Age a roving pastoral life, and burying their dead in the same kind of cinerary urns. The principal difference lies in the appearance of certain new types of imported bronze implements and weapons, such as socketed axes, slashing swords and razors.

(2) During the second stage, provisionally dated 800–600 B.C., and distinguished as L.B.2, the really important changes occurred, for there is plenty of evidence of a considerable influx of new population from the Continent, bringing with them, not only a greatly increased range of bronze implements and of metal-work in general, but a

new way of living in settled farms, with a field-system based on the use of the plough. New types of pottery, too, enable the continental origins of these immigrants to be traced. Two phases can be distinguished in this stage, known as L.B.2A and L.B.2B respectively, each lasting roughly a century, and to each of which different settlement sites have been attributed on the ground of pottery types.

(3) The third stage, L.B.3, provisionally dated 600-500 B.C., appears to have been another interval of stagnation, during which no new immigrants arrived, and little or nothing new developed, though there is a possibility that a few iron implements may have found their way into this island in advance of the Iron Age proper.

The importance of the Late Bronze Age is therefore twofold. For the first time bronze became really plentiful, with a new range of types of tools and weapons, and superior skill in casting them with hollow sockets; this immensely stimulated the bronze trade of Britain, leading to the appearance of itinerant bronze founders. Of still greater importance was the rise of a new agriculture.

The most significant contribution made by the newcomers to our developmental history was the introduction of a system of intensive corn-growing, based on the use of a plough normally drawn by two oxen.¹ This not only meant that cereals were now to take a much more prominent place in the diet of the people, but that their cultivation with the plough involved the appearance of more or less permanent farms surrounded by arable land. The system of agriculture thus introduced lasted for some 1,200 years, from the Late Bronze Age throughout the Early Iron Age and the Roman period, until it was superseded in Sussex by the English open-field system under the Saxons in the fifth century A.D. It was essentially a system of upland tillage, centred on large or small farms which were situated on hills, and which were served by roads which ran for the most part along the ridges. It is usually called the Celtic system because the Late Bronze Age immigrants who introduced it are generally considered to have been the first Celtic people to settle in Britain, and also because it only disappeared when the last Celts of

¹ Evidence has been found of the use of the plough in Denmark before 1400 B.C. and in Holland before 1600 B.C. (*Antiquity*, xx (1946), pp. 38, 158).

this part of Roman Britain were overwhelmed by the English. If, therefore, we have occasion to speak of the 'Celtic period' or 'Celtic times'—terms to which some may take exception—they are to be understood merely as terms of convenience designed to cover the period when the Celtic system of agriculture was in use in this part of Britain, viz. the Late Bronze Age, the Early Iron Age, and the Roman period—approximately 800 B.C. to A.D. 400.

The Celtic field-system was based on the use of a primitive light plough, drawn by a small team of oxen—usually two. Such ploughs are depicted on rock-carvings of the Bronze Age in the south of France and in Sweden;¹ they had no coulter, nor did they have a ploughshare at first, but the wooden point that tore up the ground was in later times protected with an iron shoe. With such a plough only light soils could be cultivated, not the heavy clays and loams which in a state of nature would be clothed with dense oak-forest. The chalk hills most readily provided the necessary conditions, and hence it is on the Downs that we find very widespread traces of the agriculture of the Celtic period. Their preservation has been partly due to the fact that the succeeding English system was especially suited to the more fertile lowland clays and loams and hence avoided the Downs, and the same is largely true of modern farming prior to 1939, so that the traces of the Celtic system had to a great extent escaped obliteration by later ploughing until the recent war. The actual outlines of the fields have been preserved by their being demarcated by banks or 'lynchets' consisting of soil which has crept downhill under the influence of repeated ploughing and rain-wash, to accumulate at the lower edges of each field. Such banks are called 'positive lynchets', while the scarps left by the corresponding denudation at the upper edges of each field are called 'negative lynchets'. The result often resembles a kind of terracing of the fields, each plot being separated from the one below it by a lynchet which is positive in its upper half and negative in its lower.

The principal feature by which the Celtic and English field-

¹ M. C. Burkitt, *Our Early Ancestors* (1926), p. 225, pl. xxviii, fig. 1; *Prehistory* (1921), pl. xlii. For the origin and diffusion of the plough, see *Antiquity*, x (1936), pp. 261–81.

systems can be distinguished at sight is that, while the individual plots in the case of the latter were long, narrow strips, nominally a furlong (660 feet) in length and a chain (66 feet) or half-chain in breadth, giving an area of an acre or half-acre, the plots of the Celtic system were much more nearly square, with a length of 200-400 feet and a breadth of 100-200 feet and an area from a half to two acres (plates XX and XXI, and figs. 49, 51, 69, 73 and 90). In further contrast, the English system was a valley-system, centred on valley settlements and served by valley roads.¹

In the Celtic system the fields tended to be squarish because it was the habit to pulverize the soil by ploughing it first in one direction and then again in a direction at right angles to the first. Evidence of this cross-ploughing has actually been found in Denmark and Holland in the form of scratches left by the point of the plough in the subsoil, and these scratches are found in two directions, crossing one another at right angles.² Now Mr. F. G. Payne has recently shown that the purpose of this cross-ploughing was to conserve moisture in the soil, and it was thus a method suited to a continental or even Mediterranean climate, and one that could only be used in Britain on light soils. This tends to confirm the view of the southern origin of the system. In contradistinction to this, the method in the English field-system was to turn over the sods in order to get rid of excess moisture; this required no cross-ploughing, so that the furrows could be long and the plots narrow.

The above outline holds good for the whole of the Celtic period, but in the present chapter we shall confine ourselves to the evidence of agriculture only so far as it concerns the Late Bronze Age, while that which affects the Iron Age and Roman period will be deferred till later.

¹ See O. G. S. Crawford, *Air Survey and Archaeology* (O.S. Prof. Papers, N.S., No. 7, 1924); E. and E. C. Curwen, 'Sussex Lynchets', *S.A.C.*, lxiv (1923), pp. 1-65; E. C. Curwen, 'Prehistoric Agriculture', *Antiquity*, i (1927), pp. 261-89; *Air-Photography and Economic History: the Evolution of the Cornfield* (Econ. Hist. Soc., 2nd edn., 1938); 'Ancient Cultivations', *Antiquity*, vi (1932), pp. 389-406; Congress of Arch. Soc., 39th Report (1932), pp. 30-5, 41-3; E. C. Curwen, *Plough and Pasture* (1946), pp. 48-77.

² *Antiquity*, xx (1946), pp. 38, 158.

As has been already stated, the second stage of the Late Bronze Age is distinguished by the arrival of numerous immigrants from northern France. Those which reached Wessex probably came from the Cherbourg peninsula, bringing with them the so-called Deverel-Rimbury types of pottery which look like imitations in clay of wooden buckets and small barrels held together by riveted hoops. Those which came to Sussex in L.B.2A seem to have come from the parts of Normandy opposite our shores, for they are distinguished by the possession of certain globular vessels such as are found at Fort Harrouard in Normandy (plate XIX, 1). In L.B.2B other immigrants may have come from further afield, from the Western Alps—Switzerland, Savoy and south Germany—a district that is recognized as having been the cradle of those peoples who later became known to history as the Celts.¹ All this upheaval resulted from the westward expansion out of Central Europe of the people known as the Urnfield people, because of their habit of burying their dead in cemeteries, or urn-fields, rather than in barrows. Our first immigrants—those coming from Normandy in L.B.2A—were refugees that had been displaced by this pressure; then in L.B.2B our second wave of immigrants included some of the Urnfield people themselves. This much is to be learnt from their pottery types.²

Equally important are new types of bronze implements and weapons. Socketed axes (fig. 57, 1) and slashing swords (plate XVII, 1) were introduced during L.B.1, but now with the new immigrants of L.B.2 we find the winged axe—a form of flanged axe in which the flanges are hammered round to embrace the wooden haft (fig. 57, 2 and plate XVII, 2)—and the ‘carp’s-tongue’ sword, so called from the shape of the blade (plate XVII, 3). Other notable bronzes (some of which have not, however, been reported from Sussex) include cauldrons, chisels, gouges, and ‘bugle-shaped’ objects—probably sword-belt fasteners. Native palstaves of Middle Bronze Age ancestry survived along with socketed axes, and in some cases the latter were adorned with a device that recalls the distinctive

¹ *Antiquity*, iii (1929), p. 33.

² See Professor Hawkes’ clear presentation of this in *S.A.C.*, lxxx, pp. 269. ff.

feature of the winged axe (fig. 57, 3). In this phase the influx of immigrants was much more considerable than in that of L.B.2A, amounting to an invasion, and it is probable that the new-comers formed the earliest Celtic population of these islands.

Cremation was still the rule, but it was less usual in this period to raise new barrows over the dead, most of which were placed as 'secondary interments' in existing barrows, or else buried in flat cemeteries or 'urn-fields'. Only one urn-field of this period has been discovered in Sussex, and that was found on Steyning Round Hill in 1949, and excavated by the boys of Steyning Grammar School under the direction of the headmaster, Mr. J. Scragg, Mr. G. P. Burstow and others.¹ Parts of about 25 to 30 Late Bronze Age urns were found, inverted over cremated bones, as well as one Middle Bronze Age urn and fragments of a beaker. This small urn-field, or cemetery, is probably to be regarded as a group of secondary interments buried in a spot known to have been hallowed by the burial of some ancient hero of the Beaker period, perhaps 1,000 years earlier.

DWELLING-SITES

In Sussex, while a few burials have been discovered, we are unusually rich in habitation-sites of the Late Bronze Age. One very characteristic feature of these, though not an invariable one, is to find a number of small embanked enclosures of round, oval, sub-rectangular or irregular shape, each of which originally contained one or more circular huts. Such enclosures may be found singly, or scattered over a hill-side as single or paired units, or they may be clustered together to form what looks like a composite settlement. So far as is known at present this form of settlement in small embanked enclosures is peculiar to the Late Bronze Age, not having been found on Iron Age or Roman sites.²

Excavation has been carried out in several of these settlements, while others are recognizable from the characteristic enclosures or

¹ *S.C.M.*, xxiv (1950), p. 85.

² *P.P.S.*, xvi (1950), p. 193.

have been discovered and destroyed in quarrying. The following sites are worth considering in some detail.

(1) *Park Brow, Sompting* (L.B.2A) (51/153086)

Park Brow (fig. 73) is a spur of Downland about a mile north-east of Cissbury and four miles north of Worthing.¹ It is covered with abundant traces of the Celtic field-system, including a succession of settlements dating from the Late Bronze Age down to the latter part of the Roman period. For the most part such farms and hamlets leave little or no visible trace on the surface, and their presence is often betrayed only by finding numerous small pieces of pottery in the mole-hills and rabbit-scratches, together with flints that have been crackled all over by fire. The latter, often called 'pot-boilers', were cooking-stones, which, after being made red-hot, were dropped into water in order to boil it—a method of heating necessitated by the lack of vessels capable of standing over a fire. The tiny bits of pottery look miserable enough, but to the experienced eye they are capable of revealing something of the date of the settlement in question, as will be shown in due course.

The Late Bronze Age settlement at Park Brow² consisted of a cluster of at least eight round huts, roughly 20 to 30 feet in diameter, situated on the south-west corner of the spur.³ Their presence was disclosed by the activity of rabbits which made havoc of the loose soil covering them, so that each hut-site appears as a slightly terraced patch of broken ground on the hill-side, yielding shards of ancient pottery. One of these huts was explored by Mr. Garnet R. Wolseley in 1924. The ground had been levelled by cutting back into the chalk, but the most curious feature was that no fewer than thirty-four small pits or holes had been dug all over the floor. Some of these no doubt were post-holes intended for the support of roof-timbers—for the hut must have resembled a wigwam in shape; but

¹ S.A.C., lxiv (1923), pp. 30-5; *Preh. Sx.*, pp. 87-92, and air-photo, plate XXII.

² *Arch.*, lxxvi (1927), pp. 1-6, 14-16.

³ If any embanked enclosures once existed, they may have been destroyed by ploughing during the Roman period.

other holes were evidently for storage, for they were dotted about the floor and still held the remains of jars and 'saddle-querns'—that is, a type of mill-stone of which the upper stone was pushed backwards and forwards on the lower, this being a development from the kind already described as a grain-rubber in the Neolithic causewayed camps.

We now find definite evidence of spinning and weaving, in the shape of spindle-whorls and loom-weights. Spindle-whorls were generally small lumps of baked clay, spherical, cylindrical, or bi-conical in shape, and pierced so as to fit on to the lower end of the spindle to give it momentum in spinning. Loom-weights at this period consisted of cylindrical masses of clay weighing 3 or 4 lb., and pierced through the axis of the cylinder so that they could be attached to bunches of threads on the loom to maintain their tension during weaving. Loom-weights varied in shape during later periods.

The sides of the huts at Park Brow consisted at least to some extent of wattle and daub, that is to say, that hazel or willow branches were interlaced horizontally in and about the upright timbers, and the whole was daubed inside and out with clay. Several pieces of this clay daub were found bearing the impressions of the wattles.

The pottery consisted of two main types—the globular vessels of northern French type, already alluded to, and cylindrical jars of Deverel-Rimbury class, with finger-printing on a raised band which girdles the vessel about a third of the way down from the rim towards the base (plate XIX, 1, 2). The former show that this hut was occupied in L.B.2A.

Owing to the fact that Park Brow was occupied and cultivated throughout the Celtic period it is not possible to point to any of the lynchets there as an example of agriculture in L.B.2A, for the fields as we see them now are mainly the result of ploughing in Roman times. In order to see actual examples of fields that have not been ploughed since this phase of the Late Bronze Age we must go to Plumpton Plain, to another Downland spur situated six miles north-east of Brighton and four miles north-west of Lewes.

(2) *Plumpton Plain A* (L.B.2A) (51/358122)

On Plumpton Plain two settlement sites have been located (fig. 49); one (Site A) belongs to L.B.2A, and the other (Site B) dates from L.B.2B. For the moment we are concerned with the former which in other contexts may be referred to as Plumpton Plain A. Both sites are difficult to find without guidance, being half-hidden in an alluring wilderness of Downland scrub. The late Mr. H. S. Toms first published a survey of Site A, which he and the late Dr. Eliot Curwen each discovered independently.¹ Site B was also discovered independently at different times by Mr. Toms and Mr. G. A. Holleyman.

Site A (fig. 50) consists of a cluster of four embanked enclosures or compounds, grouped astride the back of the spur which projects due south from that part of the main ridge on which 'Plumpton Plain' is marked on the Ordnance Map (fig. 49). They are linked together by sinuous roads which lead either to or past the entrances to the enclosures and are quite evidently contemporary with them, forming part of one integral scheme. In some places these roads take the form of narrow hollow-ways—the result of traffic, perhaps, or else deliberately hollowed out in order to obtain soil with which to form a bank on one side. The road, however, which leads directly to the upper entrance of Enclosure III has a 'double-lynchet' form, that is to say, it is delimited by lynchets on both sides, a positive above and a negative below, besides being slightly hollowed by traffic. The importance of this is that the double-lynchet form proves that the road was in use at the time when the ground on each side of it was under the plough, and as the sole purpose of the road was clearly to lead from one enclosure to the others, and thence to the fields themselves, it follows that the lynchets representing the fields were formed at the time when the enclosures were occupied. Hence in the lynchets immediately adjoining Site A we have definite examples of fields cultivated during L.B.2A—the only examples so far identified in Britain.

The enclosures themselves are more or less oval, with the exception of No. IV which is roughly rectangular. The banks by which

¹ S.A.C., lxxviii (1927), pp. 178–85.

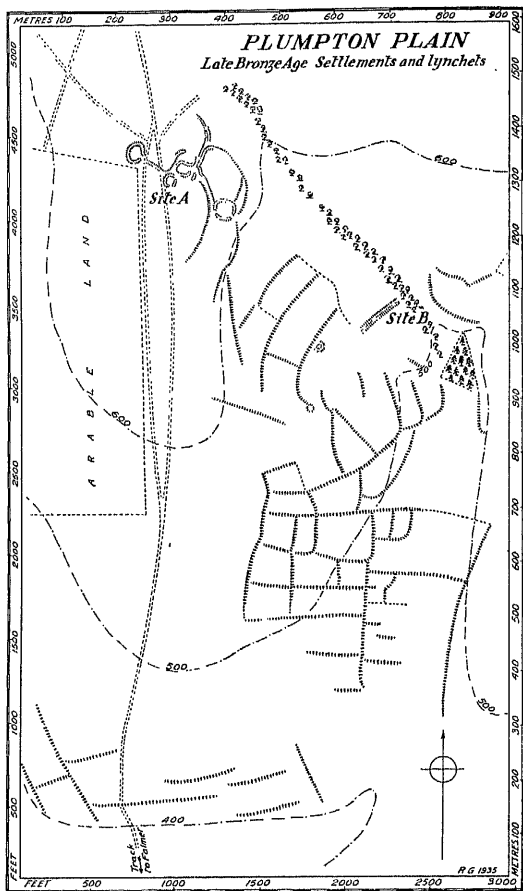


FIG. 49.—LATE BRONZE AGE SETTLEMENTS WITH LYNCHETS ON PLUMPTON PLAIN

they are surrounded have no ditches, but, as Toms has shown, are composed of material scraped up from the whole of the interior surface of the enclosed areas. Each enclosure has at least one entrance opening on to some part of the connecting road-system; No. III has two entrances which bear a definite relation both to the road on the west and to the lynchets on the east, for one entrance is approached through an opening in the latter. In three cases there is also a shallow pit in the lowest part of the compound; these were in all probability intended for collecting water, though whether they were successful may be doubted, for chalk will not hold water for long unless puddled, and excavation of two of these hollows showed neither puddling, nor clay lining, nor any accumulation of chalk sludge such as is usually found in catchment ponds.

Three of these enclosures were examined by the Brighton and Hove Archaeological Society in 1934, under the direction of Mr. G. A. Holleyman and the author.¹ Large areas of turf and top-soil were stripped so as to expose the bare chalk of which the hill is made. Cut into this chalk rock, but filled up with rubble and flints, we found numerous post-holes, many of which had held upright timbers for the walls of huts. Three round huts could be traced in outline—one in each of the enclosures examined—and it is likely that another hut might be found just inside the western entrance of No. III; but as this part is densely overgrown with bushes it was not possible to dig there. The hut in Enclosure IV yielded no pottery at all, and may therefore be regarded as an outhouse rather than a habitation. Those in Nos. II and III, however, yielded pottery of northern French Bronze Age type, similar to that from Park Brow, as well as other coarse vessels compatible with a like date and origin.

The huts were in each case more or less circular and about 20 feet in diameter. The cylindrical and vertical form of the post-holes suggests that the wall-posts were upright, in which case they would have been surmounted by a conical thatched roof. In two cases a central post-hole indicated a central support for the roof. There were no store-holes in the floors, such as occurred at Park Brow, nor were there any hearths inside the huts, but occasional cooking-holes were

¹ *P.P.S.*, i (1935), pp. 16 ff.

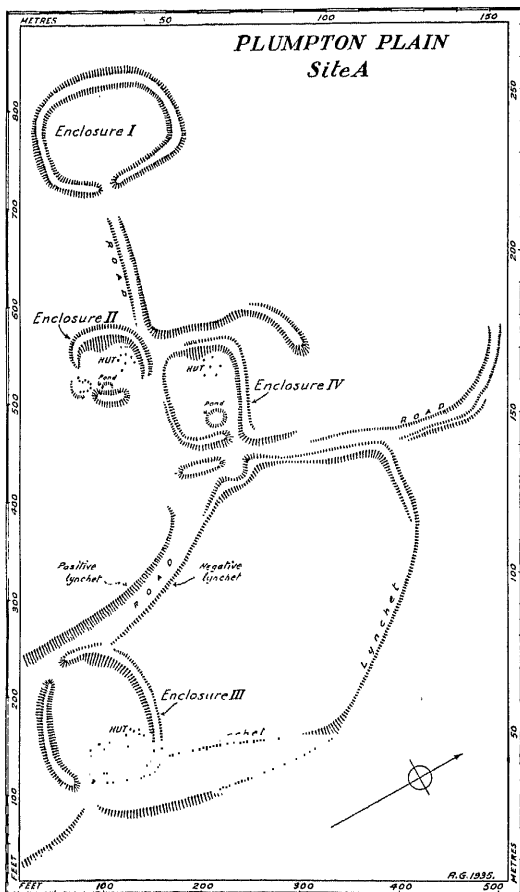


FIG. 50.—LATE BRONZE AGE SETTLEMENT, SITE A, PLUMPTON PLAIN,
SHOWING POST-HOLES OF HUTS
Survey by E.C.C. and G. P. Burstow

found outside them, containing broken pots and pot-boilers. The huts, so constructed, must have resembled very closely many of the native dwellings still seen in South Africa. The banks of the enclosures may also have supported thorn hedges; a trial cut through one of them revealed no palisade post-holes, but only some curious furrows of uncertain origin, running in a direction parallel with the bank.

Across the valley to the west of Site A there are two separate enclosures between Streathill Farm and Horseshoe Plantation. Each appears to be of the same type as those we have been considering, and each is accompanied by a few lynchets, being aligned to an ancient road which crosses the head of the valley obliquely. It looks as if these may be further settlements of the same people.

(3) *Plumpton Plain B* (L.B.2B) (51/361120)

Site B on Plumpton Plain occupies a little clearing on a small spur that projects into the head of Moustone Bottom, a quarter of a mile south-east of Site A (fig. 49). It is not marked by any earth-works except a small bank and ditch, resembling an old hedge-bank, which runs across the spur, marking the upper limit of the settlement-area, with which it is probably contemporary. No doubt this once supported a stout thorn-hedge. Before excavation the only visible signs of former occupation consisted in numerous shards of pottery and pot-boilers found in the mole-hills. This site was examined at the same time as Site A, several cuttings being made at what were considered to be likely spots, so as to lay bare the natural chalk. In three places the sites of huts were found, marked not only by post-holes, but also by store-holes similar to those which studded the floor of the dwelling at Park Brow. The cuttings were not, however, sufficiently extensive to recover the full ground plan of any of the huts. Considerable quantities of pottery were found, much of it in the store-holes, and this has been attributed by Professor Hawkes to the seventh century B.C. Beside bucket, barrel and bag-shaped vessels of Deverel-Rimbury affinity, there were two very significant classes of pottery.

The first (Hawkes's Class B 1B) is apparently a cross between

British Middle Bronze Age form and Late Bronze Age technique (plate XVIII), indicating, not only a fusion between new-comers and natives, but that the natives had been continuing to make their clumsy bi-conical collared urns during L.B.2A, uninfluenced by the few refugees that were coming over from northern France. This was no more than might have been expected; but now that a considerable influx of new blood was arriving in the second phase (L.B.2B) we have evidence of fusion, at least in technique.

The second class of pottery which is of special significance from this site is a group of much finer and more delicate ware with incised decoration (Hawkes's B 4) which can be traced to the Western Alpine regions and is associated with winged axes (plate XIX, 5). It is therefore of special interest to note that one of our huts yielded a fragment of a winged axe, besides a bronze knife. Other finds included spindle-whorls, loom-weights, whetstones and hammer-stones.

While there are no means of proving that the lynchets which lie immediately to the west and south of this site are contemporary with it, there is at least no reason to doubt it. In fact there are grounds for believing that the western group of lynchets belonged originally to Site A and after its desertion continued to be ploughed by the people of Site B. The extensive group to the south may equally well be contemporary with Site B, especially as careful search has failed to identify any later settlement on the hill; but as the neighbouring hills and valleys are covered with exactly similar lynchets, some of which belong to the Roman period, we must be cautious in assuming a Late Bronze Age date for this group. Most of these lynchets are concealed in a thick scrub of bushes, and their planning, which was carried out by the author with the help of Mr. G. P. Burstow in 1934, was only made possible by going over the ground with air-photographs and marking on them the positions of the lynchets in relation to individual bushes and trees that could be identified on the photographs.¹

¹ As scrub-clearance is proceeding apace in the interests of modern agriculture, much of this series of lynchets may have been destroyed since the survey was made.

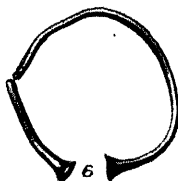
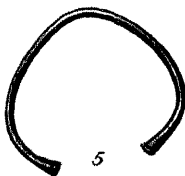
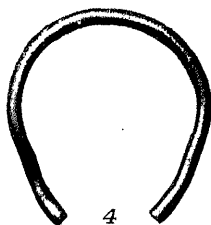


PLATE XVII

1, Bronze sword of U-type from Battle, with wooden handle restored (B.M.) (A).
2-7, Part of the Beachy Head Hoard (B.M.) (A). 2, Winged axe; 3, Hilt of
carp's-tongue sword; 4-7, Penannular gold bracelets

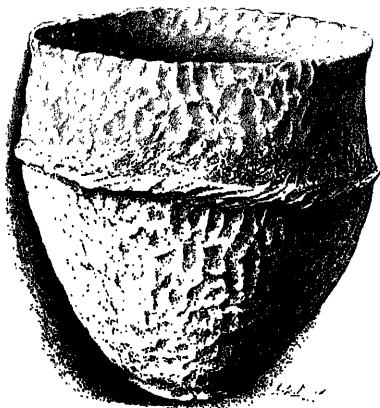


PLATE XVIII

Above: RING OF POST-HOLES MARKING THE SITE OF A LATE BRONZE AGE HUT,
NEW BARN DOWN

(Sussex Archaeological Collections)

Below: LATE BRONZE AGE STORE-JAR, FROM PLUMPTON PLAIN B (B'TON M). (1)

We may safely assume that the whole of the lynchets shown on fig. 49 were not under the plough at the same time, but that cultivation started at the northern end of the group, and spread towards the south. One may thus watch the development of the fields from a somewhat haphazard arrangement around Site A to the greater compactness and rectangularity which is found in the southern portion, and which is so characteristic of the Celtic field-system during the Roman period. That such compactness was also possible in L.B.2B is shown by the evidence of New Barn Down.

(4) *New Barn Down* (L.B.2B) (51/084092)

The earthworks of New Barn Down, which forms the south-eastern spur of Harrow Hill running down to Michelgrove, some five and a half miles north-west of Worthing, were discovered by the late Dr. Eliot Curwen and the author shortly after 1918,¹ and were excavated by the Worthing Archaeological Society in 1933.² They proved to be the remains of a farm of L.B.2B, complete with farmyard, huts, fields and approach-road, undamaged by any later prehistoric occupation (fig. 51).

The farm-yard, or compound, is situated on the back of the spur and is roughly rectangular, being bounded on the north by a bank and ditch and elsewhere by a slight bank carrying a stockade, of which we found the holes set at intervals of about 3 feet apart (fig. 52). Embayed into the northern bank are what appear to be the sites of five huts in a row; one of these was stripped to the bare chalk and revealed a ring of post-holes but few relics of occupation. Another hut-site was uncovered close to the southern palisade. This had been constructed on a ring of vertical posts, about 20 feet across, and had no doubt been covered with a conical thatched roof, the whole resembling very closely the huts at Plumpton Plain A (plate XVIII). No central post-hole was found, nor any store-pits, but scattered on the floor we found a fair quantity of fragments of Late Bronze Age pottery, ornamented with rows of finger-tip impressions applied to raised bands; there were also some saddle-queens for grinding corn, the blade of a bronze knife, and the tip of a bronze

¹ S.A.C., lxiii (1922), pp. 32-5.

² *Ibid.*, lxxv (1934), pp. 137-70.

spear-head. Some conspicuous hollows within the 'farm-yard' may have been intended to collect water; only one of them contained any chalky sediment. A semicircular bank and ditch, a few yards north of this compound, is part of an oval enclosure, whether intended

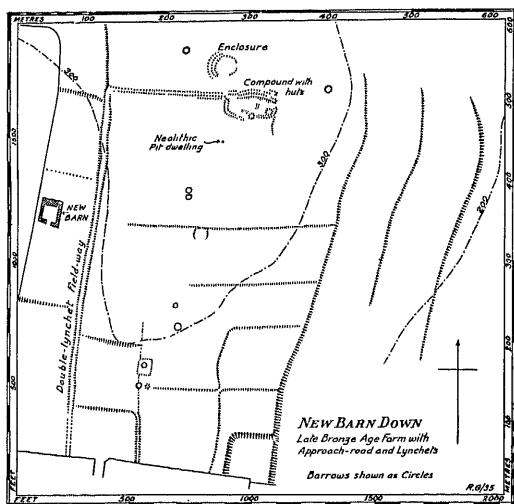


FIG. 51.—NEW BARN DOWN: LATE BRONZE AGE FARM WITH ROAD AND LYNCHETS

Survey by E.C.C. and G. A. Holleyman

for another group of huts or as a cattle-pen; this has not yet been examined with the spade.

From the north-west corner of the 'farm-yard' an inconspicuous hollow grassy track runs westwards across the ridge for 500 feet, and then turns southwards as a well-marked 'double-lynchet' road for a further 1,500 feet, to be ultimately lost in the modern enclosed fields by Michelgrove (fig. 51). From the sides of this road lynchets

run off in both directions, marking fields which were aligned with the road and cultivated when the latter was in use. The road and the fields therefore form one coeval entity. The road itself leads nowhere but to the main entrance to the 'farm-yard' which contains the Late

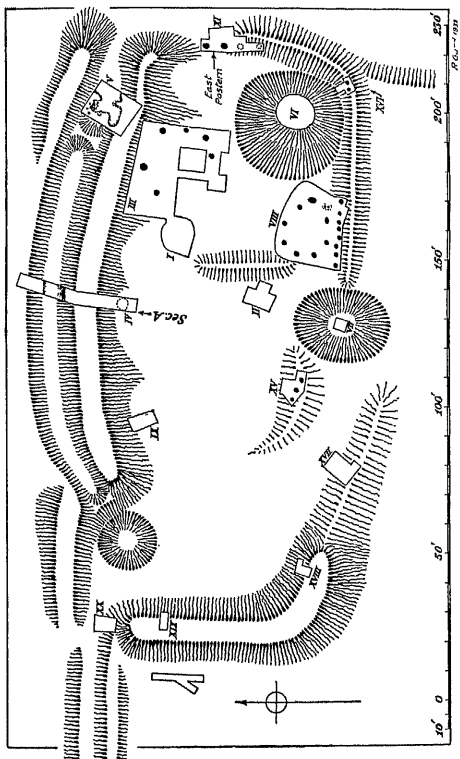


FIG. 52.—SITE OF LATE BRONZE AGE FARM, NEW BARN DOWN, SHOWING POST-HOLES OF HUTS AND PALISADE

VIII, Site of hut shown in Plate XVIII
Survey by E.C. and E.C.C.

Bronze Age huts, and must therefore be contemporary with them; in fact, one may be certain that it has not been in use since that time. We are thus in a position to show that the whole complex—the farm-yard, the huts, the road and the fields—forms one contemporary unit which is to be dated by the pottery found in the huts, namely, to the latter part of the Late Bronze Age (700–500 B.C.). The plan of the fields reveals the compact rectangularity which is characteristic of the Celtic system. On the eastern slope of the hill (to the right in the plan) long and wide strips of ground, separated by high lynchets, run from north to south along the hill-side. These were originally divided transversely into squarish fields by boundaries which have not survived. Such an arrangement is very characteristic of the Celtic field-system.

Several burial mounds are scattered over the fields, and it is likely that most of these are of later date. Two which we examined proved to be Saxon. A Neolithic pit-dwelling which was also discovered by accident has been described already in connexion with the Harrow Hill flint-mines.

From the angle where the road turns south a bank and ditch continue the line northwards as far as a small modern reservoir. This, though part of the same complex, is not part of the road. Unfortunately the angle of the road and its junction with the bank and ditch have been somewhat obscured by the crossing of modern tracks.

(5) *Blackpatch and Cock Hill, Patching* (51/092092 and 089097)

About half a dozen scattered single enclosures of Late Bronze Age date lie on the western slope of Blackpatch Hill (Patching) and especially on the spur known as Cock Hill, about half a mile north-east of the New Barn Down site just described. These are being investigated by Dr. H. B. Ratcliffe Densham, who is finding characteristic pottery.¹ They appear to be associated with rather vague and ill-defined lynchets, and they may perhaps be regarded as part of the New Barn Down complex.

¹ S.A.C., xci (1953), p. 69. A survey of one of the enclosures on Cock Hill appears in S.A.C., lxiii (1922), p. 35.

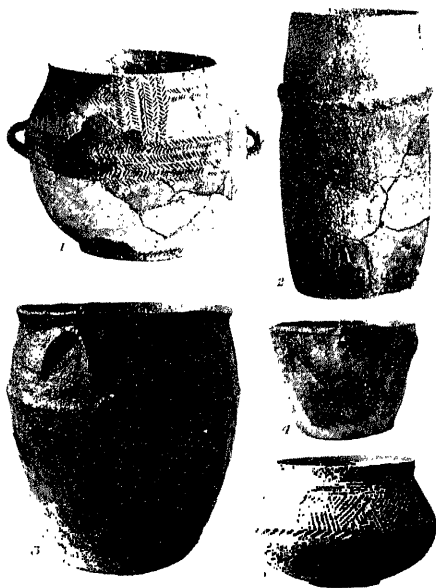


PLATE XIX.—LATE BRONZE AGE POTTERY (ALL $\frac{1}{2}$ EXCEPT 5)

Plumpton Plain B (B.M.—replica in B'ton M.) (1)
(Nos. 1 and 2 in private coll. at Nettlecombe, Somerset.)



PLATE XX.—LYNCHETS OF THE CELTIC FIELD-SYSTEM, CLIFFE HILL, LEWES, SEEN FROM THE CABURN

J. B. Radford

(6) *Kingston Buci* (L.B.2B) (51/233059)

Another settlement of this period was situated on the coastal plain near the village of Kingston Buci (or 'by Sea') five miles west of the centre of Brighton. The site was discovered and destroyed by gravel-diggers (for the subsoil is Coombe Rock), but intermittent watch was kept on the work for many years by the late Dr. Eliot Curwen, the late Mr. E. J. G. Piffard, and others.¹ A number of 'black holes' were discovered, full of dark soil and charcoal; these were in reality storage holes or small pits sunk into the Coombe Rock, containing the remains of large jars with finger-tip ornamentation on raised bands—and other objects. The occupation of this site continued throughout the greater part of the Iron Age also. If any cultivation was practised by the Late Bronze Age inhabitants the nature of the soil, its relative flatness, and the intensity of modern agriculture have combined to ensure that no traces have survived.

The late Mr. W. L. White and Mrs. Grahame Clark (Miss G. M. White) have found evidence of a similar dwelling-site on the coastal plain at Selsey.

(7) *Kingley Vale* (41/822106)

A small farm, most probably but not certainly belonging to this period, stood on a little spur which, projecting below the steep, curved southern flank of Bow Hill, separates the two heads of the romantic Kingley Vale. This spur is covered with lynchets, among which is a small semicircular area, partially embanked and enclosing four shallow depressions.² Some very limited exploratory cuttings made here by the author in 1932 showed these to be the sites of huts, one of them having in one corner a small pit in which were found the fragments of a very remarkable and unusual pottery vessel. This, when reconstructed, is hemispherical, its sides being full of small holes, while at the centre is a larger opening (fig. 53). The only analogies appear to come from Denmark³ and Germany,⁴ and the

¹ S.A.C., lxxii (1931), pp. 185-217.

² *Ibid.*, lxxv (1934), pp. 209-15.

³ G. Hatt, *Landbrug i Danmarks Oldtid* (Copenhagen, 1937), p. 52, fig. 18.

⁴ Mr. G. C. Dunning, F.S.A., has drawn my attention to an apparently

suggestion is that this type of vessel may have been used for pressing the whey out of the curd in making cheese. The only other pottery

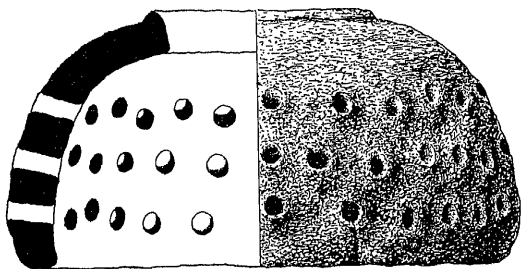


FIG. 53.—PERFORATED VESSEL FOR CHEESE-MAKING, KINGLEY VALE (L.M.) (8)

found on this site consists of four shards which, to judge from their paste, more resemble Deverel-Rimbury ware than any other. The site is one that might repay wider excavation in the future.

(8) *Playden, Rye* (51/921226)

A peculiar site, situated in the Wealden forest at Playden near Rye, was discovered and excavated by Mr. H. J. Cheney within the last few years. When first published it was attributed—on the grounds of its peculiar pottery—to the overlap of the Neolithic and Early Bronze periods,¹ but Professor Hawkes has since pointed out that the evidence, particularly that of the pottery, points rather to the overlap of the Middle and Late Bronze Ages, and this revised opinion seems to have met with general approval.²

The site lies on a small patch of Wadhurst Clay which crowns a knoll of Ashdown Sand, and consists of a ring ditch, enclosing an area 65 feet across in the centre of which were traces of a circular comparable vessel from a dwelling-site at Bieskau in Germany, dated to the first century B.C. (*Einführung in die ur und frühgeschichtliche Abteilung des Museums Ratisbon*, Ratisbon, 1927, p. 9, plate 5, fig. 5).

¹ *Ant. J.*, xv (1935), pp. 152-64.

² *Ibid.*, xv, pp. 467-71.

hut, 20 feet in diameter, which appeared to have been reconstructed after the whole area had been deliberately covered with fine white sand. The original hut and its reconstruction appear to have belonged to the same period, and it is suggested that the occupants of the site may have found the clay knoll too cold and damp, and that they may have attempted to remedy it by overlaying the site with sand which can scarcely have been deposited there by natural means.

Apart from some Mesolithic flints and medieval pottery and iron-slag, which are intrusive, the material for dating the site consists mainly in the fragments of four small flat-bottomed pots with slight shoulders, two of which also have lug-handles. For technical arguments the reader should consult the papers already cited, but briefly Professor Hawkes's view is that these vessels represent a fusion between native Middle Bronze Age and immigrant Late Bronze Age style and technique. The ring-ditch type of habitation, without any entrance causeway, is a Middle Bronze Age characteristic in Oxfordshire, exemplified by the settlement of that period at Sutton Courtenay, described by Mr. E. T. Leeds,¹ though the type has occasionally been found as late as the Iron Age. This form of dwelling, its situation in the forest, and the absence of any trace of lynchets, suggest that its occupants may have been natives of Middle Bronze Age stock, who had picked up some experience of the invaders' ways, but who had nevertheless taken refuge from them in the woods. The forest can scarcely have been free from outlaws then, as later—men who while defending themselves against wolves by means of such ring-ditches as that at Playden, made incursions upon civilized society as opportunity offered. Further exploration of the Weald may throw more light on this question.²

Close to the ring-ditch at Playden Mr. Cheney also found part of

¹ *Arch.*, lxxvi (1927), pp. 59–62.

² In 1936 the late Dr. Eliot Curwen found the remains of a ditch in the sand-pit at Selmeaton on the Lower Greensand—the site of the Mesolithic settlement (p. 55). Part of a Late Bronze Age bucket-shaped vessel, with finger impressions on a raised band, was found half-way down in the filling of the ditch. It is just possible that this may represent a similar Wealden site to that at Playden, but the evidence is insufficient (*S.A.C.*, lxxix (1938), p. 195).

a rectangular enclosure surrounded by traces of a wattle fence and a shallow ditch. The holes left in the clay by the uprights of the fence were about 4 inches in diameter, and were placed about a foot apart, with holes for stouter posts every 10 to 15 feet. They were all found to be filled with darker soil which could be picked out with a knife-blade. Mr. Cheney's discovery and excavation of these holes was a really brilliant and careful piece of work. Nothing was found to indicate the date of the enclosure, but it may quite well have been a pen for animals—perhaps pigs—belonging to the occupant of the ring-ditch.

(9) *Highdown Hill* (L.B.2A and 2B) (51/092044)

Highdown Hill is a conspicuous low chalk eminence, three and a half miles west of Worthing, crowned with a clump of trees that stand within a small fort of Iron Age date. Excavations have been carried on in this important site several times since 1857, and remains from all periods from the Late Bronze Age to the Saxon period have been identified. In 1869 Pitt Rivers digging inside the fort found a curious stepped pit in which were a socketed bronze knife and part of a large pottery vessel, as well as much other pottery.¹ Again, in 1901 Mr. Edwin Henty, while exploring the Saxon cemetery which occupied much of the interior, found a bronze knife with a tang (fig. 61, 4), a broad-edged tanged chisel (fig. 61, 3), a gold hollow penannular ring of triangular section (fig. 67), and part of a perforated stone mace-head.² All the metal objects are of Late Bronze Age type. It seems that he also found among the Saxon graves a socketed gouge (similar to fig. 61, 1) and another small tanged chisel of less developed pattern, which are to be seen in the Worthing Museum. According to the late Mr. C. H. Goodman's manuscript note-book on Highdown Hill, preserved in the Worthing Public Library, these last two implements were found in 1902, together with a socketed axe (no wings) and a palstave of type C, both of which he depicts, as well as 'other palstaves'. There

¹ *Arch.*, xlii (1869), pp. 74-6.

² *P.S.A.*, xviii (1901), pp. 386-8. See also the *Fifth Annual Report* of the Worthing Archaeological Society (1927), pp. 7-8.

is no indication as to whether or not these implements were found together in a hoard, but on the whole this seems probable, but not certain. The axes are now, unfortunately, lost.

In 1939 the Worthing Archaeological Society carried out excavations in the Highdown fort under the direction of Dr. A. E. Wilson, F.S.A., with a view to determining its date and character. The conclusions reached on this matter will be deferred to their proper place in the next chapter, since the fort was found to be of Iron Age date, but in the course of examining it the remains of a hut of Late Bronze Age date were found buried beneath the western rampart.¹ The complete plan of the hut was not uncovered, but there appeared to be two distinct levels suggesting occupation and reconstruction over a fairly long period. Two hearths and two cooking-holes were found, with many burnt cooking-stones, a spindle-whorl, a loom-weight and part of a saddle-quern. The pottery, which was fairly plentiful, is referable to both L.B.2A and L.B.2B, and includes the northern French globular type noted as occurring at Park Brow and at Plumpton Plain (site A). The Highdown hut may therefore be said to have been occupied in both the eighth and seventh centuries B.C., and very probably in the sixth century also, ending with the construction of the fort by Iron Age invaders early in the fifth century.

(10) *Castle Hill, Newhaven* (L.B.2B) (51/445000)

Castle Hill is the name of the cliff-top, some 300 yards west of the modern fort covering the mouth of the River Ouse at Newhaven. This hill, which at the time in question must have been more than a mile from the sea, was crowned with a large Iron Age hill-fort, since totally destroyed, but, judging from the quantities of pottery found, the site must have been occupied continuously from the Late Bronze Age (L.B.2B) till the third century A.D.—a period of about a thousand years.²

No structural remains of the dwellings of any part of this long occupation have been found, as the whole hilltop has been churned

¹ *S.A.C.*, lxxxi (1940), pp. 175 ff.

² *Ibid.*, lxxx (1939), pp. 263-92, esp. pp. 269-73.

up by a variety of activities in recent years, but the pottery recovered includes a series of L.B.2B wares, some of which are immigrant 'urn-field' types, while others betray some fusion with survivors of our native Middle Bronze Age. This feature is common on our L.B.2B sites, and may be explained on the supposition that immigrant men took to themselves wives and female slaves from the natives whom they found in possession; it was women's work to make domestic pottery, so these native women evolved some new types of pot which were a cross between what their masters wanted and what they themselves had been accustomed to making.

Besides pottery of this period, a carpenter's kit of bronze tools was found here some years ago (p. 199 and fig. 61).

(11) *Itford Hill, Beddingham* (fig. 54) (L.B.2A) (51/447053)

On the southern slope of Itford Hill, about a mile north of the village of Tarring Neville and just two and a half miles due north of Newhaven, lies the most remarkable, and probably the most completely excavated, Late Bronze Age settlement in Britain. This was discovered in 1937 by Mr. G. A. Holleyman and the late Mr. V. Gerard Smith of Seaford during systematic exploration of that area of the Downs; and during five seasons' work from 1949 to 1953 the entire site has been excavated by the Brighton and Hove Archaeological Society under the direction of Mr. G. P. Burstow and Mr. G. A. Holleyman. It is due to the generous co-operation of these latter that a description of the site and a summary of the excavators' provisional conclusions are included here in advance of their detailed publication by the Society.¹

The settlement consists of a number of enclosures and platforms, numbered I to VIII, forming a compact group about 440 feet by 180 feet maximum dimensions; within these the sites of eleven round huts (A-L) have been identified. In addition to these there is a separate enclosure (IX), about a hundred yards to the south-east of the main group, containing two huts (M and N), and nearby is another probable hut-platform (X) which, however, has not been

¹ The full report is expected to appear in the *Proceedings of the Prehistoric Society*.

examined, as it appears to have been damaged by ploughing, probably during the Roman period.

The enclosures and hut-platforms have been cut back into the hill-side which slopes gently to the south; this has left a series of banks or scarps to the north, and in some cases the material removed has been used to form the enclosing banks which, as usual, have no ditches. A hollow-way appears to have approached the main group along the western part of the north side, and a lynchet trails away eastwards from the east end of the group; this is the only survivor of the contemporary field system. A short distance to the south is a 'cross-ridge dyke', but, though this is probably contemporary, there is no evidence at present to prove it. Parts of the hill and the slopes of the valley to the west are covered with lynchets, but these are probably to be assigned to the Roman period.

All the thirteen huts which have been revealed by excavation were roughly circular, with a diameter varying from 15 to 22 feet. Each consisted of a ring of posts set in holes dug into the chalk, and presumably supporting a conical thatched roof. Four of the huts (namely, B, D, M and N) had entrance porches projecting on the south side; these the excavators consider were dwelling huts, while the remainder served as workrooms and outbuildings of various kinds. Some at least of the huts with porches had central posts to support the apex of the roof; these were not found in any of the huts that had no porches. Another difference between the two classes of huts lies in the fact that, whereas some of those without porches had store-holes and small pits in their floors, these were not found in any of the huts that had porches.

The chief dwelling was evidently Hut D in Enclosure IV, for it was the largest, both in area and in the size of its post-holes, and it may well have been the dwelling of the Chief or owner of the farm. The porch of this hut was flanked by shallow grooves in the chalk, and beside the inner doorway a large carved chalk phallus was found standing upright—an emblem of fertility magic that was thought to ensure the fertility of the flocks and fields.

Small storage pits, up to 3 feet in diameter and 2 feet deep, were found in Huts A, E and L. Those in Hut L contained much pottery,

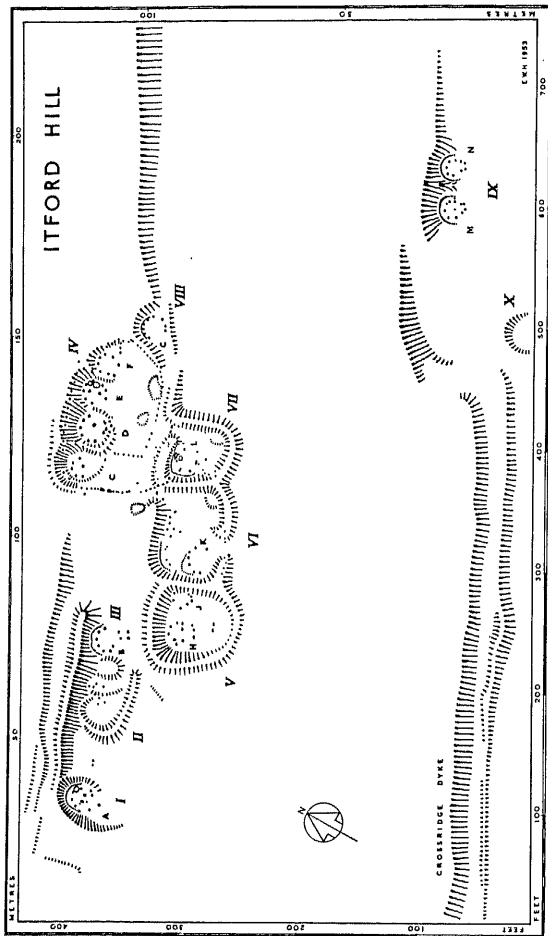


FIG. 54.—LATE BRONZE AGE SETTLEMENT, ITFORD HILL
Survey by E. W. Holden and G. A. Holleyman

but on the floor of a pit beside the wall of Hut E was found a conical heap of carbonized barley (*Hordeum hexastichum*),¹ 11½ lb. in weight, containing a few complete and fragmentary ears. Besides the barley, and saddle-querns on which it was ground, Hut E probably contained an upright loom, for two holes suitable for supporting the posts of such a loom were found on the central axis of the hut, and there were also a number of cylindrical clay loom-weights. Much broken pottery was scattered over the floor of this hut.

Pottery was also found on the floors of Huts A, D, H and L, and saddle-querns in Huts A, H and K. Two small bone awls came from Hut C and a larger one from Hut D. A few dozen flint sling-stones (beach-pebbles of the size of a plum) were found scattered, especially in Enclosures II and VIII. Burnt flints occurred on all hut-floors, but quantities of them were found in Enclosure II, in a pit in Hut A, and in a shallow scoop outside the west side of Enclosure IV. It is possible that Enclosure II may have been a corn-drying kiln in which heated stones were used, as at New Barn Down. A quantity of charcoal lay in a pit at the back of Hut L, between the wall of the hut and the cut-away bank behind it, but there were no fires inside any of the huts.

Part of a bracelet of Kimmeridge shale was found in Hut N, and a few whetstones in Enclosure IV. There were no spindle-whorls.

Quantities of winkle-shells occurred to the south-east of Hut F, and mussel-shells in part of Enclosure II. There were surprisingly few animal bones, but the skeleton of an ox, lacking the legs, was found lying at the back of Hut N.

These scanty relics of occupation betoken a short life for the settlement, and this is confirmed by the observation that only two of the huts (E and F) needed to be rebuilt, as indicated by the presence of a second ring of post-holes overlying the first ring. The pottery, which included some northern French vessels, as at Park Brow and Plumpton Plain A, points to a date in L.B.2A, viz. the eighth century B.C., according to present reckoning. The complete uncovering of the whole site makes it clear, too, that we are dealing

¹ Identified by Hans Helbæk of Copenhagen, who has reported on it in detail in *P.P.S.*, xviii (1952), pp. 209, 221.

with a farm rather than a village, and that the various huts served different purposes, like rooms in a house.

The general resemblance of Enclosure IV to the Late Bronze Age

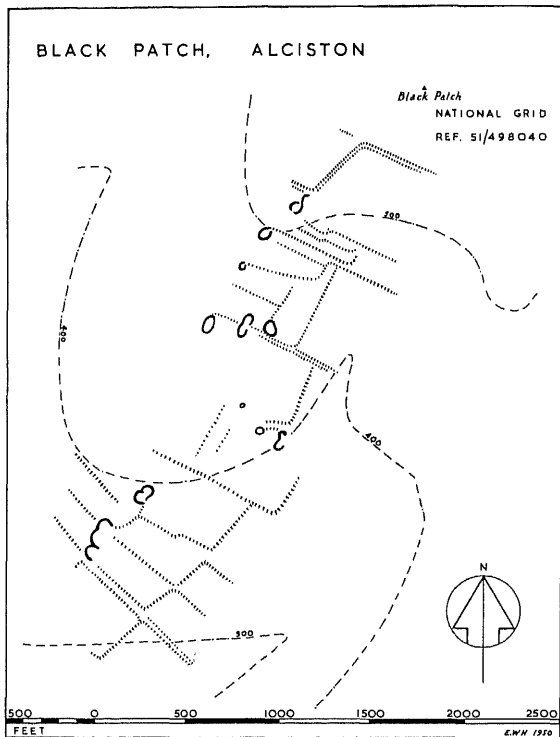


FIG. 55.—LATE BRONZE AGE ENCLOSURES AND LYNCHETS, BLACK PATCH, ALCISTON

Sketch survey by G. A. Holleyman and E. W. Holden

enclosure on New Barn Down (p. 181) will be immediately apparent. In each case a bank runs along the north side sheltering a row of closely placed round huts; a hollow track approaches the north-east corner; and finally the enclosure is surrounded by a post fence. The remaining enclosures on Itford Hill do not seem to have been so fenced, though there was a wooden gate in at least one instance; the surrounding banks in all probability carried dense thorn hedges, as suggested at Plumpton Plain Site A.

(12) *Black Patch, Alciston* (51/498040)

This site, to be carefully distinguished from Blackpatch Hill in Patching, was discovered by Mr. G. A. Holleyman, and the accompanying sketch survey (fig. 55) was made by him and by Mr. E. W. Holden, and is included here by their courtesy. A spur slopes down towards the south-west from the main ridge of the Downs south of Alciston and west of Alfriston, and on this spur are to be found a large series of lynchets associated with about a dozen scattered enclosures, some of which are round and single, while others are incomplete and double, resembling a 3 in plan. The series of lynchets includes two 'double-lynchet' roads and a hollow-way. Though this site has not yet been excavated, there is little doubt that it will prove to be of Late Bronze Age date.

(13) *West Blatchington, Hove* (51/275072)

Excavations carried out by the Brighton and Hove Archaeological Society in 1947-9 under the direction of Messrs. N. E. S. Norris and G. P. Burstow before the building of the Sunninghill housing estate, about a quarter of a mile north-west of West Blatchington church in Hove, disclosed scattered evidence of Late Bronze Age occupation.¹ A few store-jars were found in holes in the subsoil, and also a cooking-place containing over a ton of burnt flints and large quantities of broken pottery. Less usual on domestic sites was the finding of two bronze palstaves of type C and a broken winged axe. No structural remains of the settlement survived as the area formed part of a farm during the Roman period.

¹ S.A.C., lxxxix (1950), pp. 8-11.

BRONZE IMPLEMENTS AND HOARDS

It is during the Late Bronze Age that we begin at all commonly to find several axes and other objects buried together in groups or hoards. Bronze had become very much more generally available, and the founder, probably itinerant, began finally to supplant the flint-knapper. His raw material and refuse are often found in the hoards in the form of 'cakes' of bronze from the crucible, and 'jets'

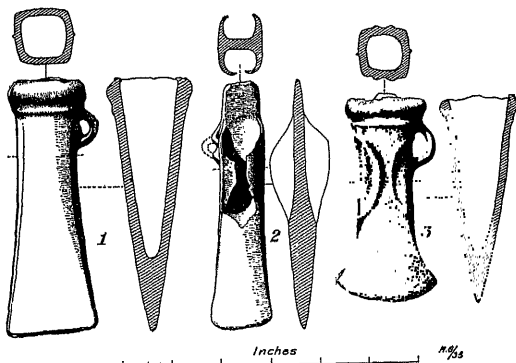


FIG. 57.—LATE BRONZE AGE AXES ($\frac{1}{2}$)

Socketed axe with wing. The illustration shows three different types of axes, labeled 1, 2, and 3, each with a side view and a plan view. Axis 1 is a simple, tapered axe with a square head. Axis 2 is a more complex, tapered axe with a square head and a small loop. Axis 3 is a socketed axe with a wing. A scale bar at the bottom indicates inches and millimeters.

which have been cut from the rough castings, together with unfinished castings themselves, and moulds for axes or other tools, and also old broken implements, sometimes partially fused. One datable hoard found at Bognor about 1924 consisted of fifty-eight worn-out palstaves of type B, fourteen of which have loops, and thirty-two fragments of others, together with 'cakes' of metal—the stock-in-trade of a founder.¹ Other hoards, consisting exclusively of new and usable tools, may represent the stock of itinerant pedlars, though

¹ S.A.C., lxvi (1925), p. 225.

the founder may often have peddled his own wares; others may have been the collected possessions of ordinary folk, and in any case they were probably hidden in time of danger by their possessors who never lived to retrieve them. The date of a hoard is given by the latest datable type represented in it, and study of the details of these hoards enables certain conclusions to be drawn regarding the relative dating of different types of objects. The hoards found in Sussex are listed in detail at the end of this chapter, but it must be

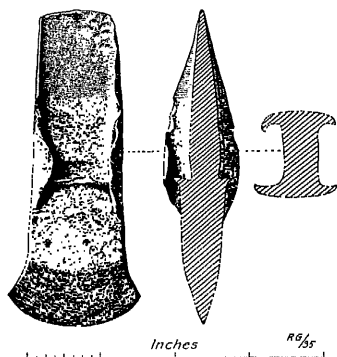


FIG. 58.—WINGED PALSTAVE, FROM THE R. ARUN AT LITTLEHAMPTON (L.M.) ($\frac{1}{2}$)

realized that our knowledge of the relative dating of individual types of tool or weapon depends on a study of hoards and distributions in Britain and the adjacent parts of the Continent, and not merely on our Sussex material.

The value of this study is illustrated by a hoard of thirteen bronze axes found at Worthing in 1928, consisting of eleven looped palstaves (type C), one socketed axe with, and one without, wing-decoration.¹ Many of the palstaves were in prime condition, not old and worn-out specimens, and their date is given by the socketed

¹ Marian Frost, *The Early History of Worthing* (Hove, 1929), pp. 23-8.

axe with wing-decoration which belongs to L.B.2B. This shows that looped palstaves of this form were still being made at this late date, and this conclusion is confirmed by a study of other hoards. Another particularly valuable association was provided by a hoard found in Worthing, consisting of looped palstaves and socketed axes and one winged axe, all contained in a jar with a rounded shoulder, and out-curved lip of rare type (Hawkes's Class B 5).¹ A small hoard of bronzes found in Whitelot Bottom, Portslade, close to Thundersbarrow Hill, belongs, however, to the beginning of the Iron Age, for

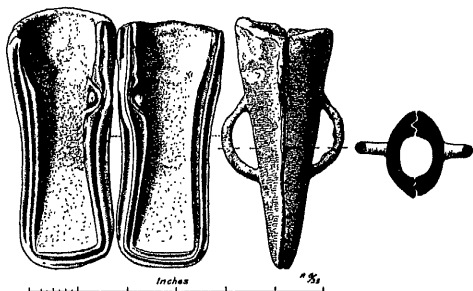


FIG. 59.—BRONZE MOULD FOR CASTING A SOCKETED AXE, FROM THE WILMINGTON HOARD (L.M.) ($\frac{1}{3}$)

besides a looped palstave (type C), and pieces of a spearhead and of a socketed axe there occurred three pins, one of which is of 'swan's neck' type (fifth century B.C.) and another ring-headed (fifth-fourth century B.C.).² These therefore will find a place in the next chapter. Another hoard from Sidlesham is remarkable in that it includes both a winged axe and a flanged axe. The latter must have been at the lowest computation five hundred years old when the hoard was deposited.

Axes.—As we have seen, palstaves continued in vogue throughout

¹ *Ant. J.*, iv (1924), pp. 220-1, and pl. xxx.

² Brighton Museum (H. S. Toms loan).

the Late Bronze Age, type C (fig. 46, 3) being specially characteristic of L.B.2B. But L.B.1 was ushered in by the appearance of an entirely new type of axe, having a socket, which had been evolved abroad and was not derived from our native palstaves, as was formally believed. These socketed axes are usually plain, or may be adorned with vertical lines cast in relief, but have no wing-decoration (fig. 57, 1). In L.B.2B, however, another foreign type appears—the winged axe, which hails from the West Alpine regions,

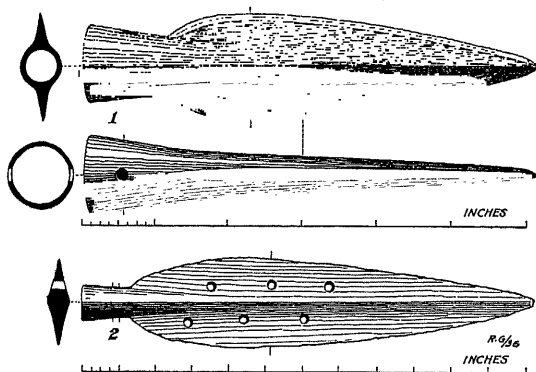


FIG. 60.—LATE BRONZE AGE SPEAR-HEADS

1, Lewes Brooks (L.M.) ($\frac{1}{2}$); 2, Sutton End, near Petworth (B.M.—R.G.R.) ($\frac{1}{2}$)

and which resembles a palstave without a stop-ridge and with the flanges beaten round the split wooden haft (fig. 57, 2). Henceforth the socketed axes sometimes, but by no means always, adopted a form of decoration which recalls the wings of the winged axe (fig. 57, 3). The presence of a winged axe in a hoard, or of wing-decoration on a socketed axe, may therefore be taken as an indication of a date in the second half of the Late Bronze Age. Very occasionally the influence of the winged axe made itself felt on the palstave too, resulting in its flanges being beaten round in imitation

of wings. An example was dredged from the River Arun at Littlehampton (fig. 58), but this, as Professor Hawkes has pointed out to the author, is most probably an import from the Highland Zone of north and west Britain.¹

A palstave of northern French form, uncommon in Britain, was found at Newhaven, where it must have been lost by one of the immigrants of L.B.2B.²

Swords.—The bronze slashing sword makes its appearance in Britain about 1000 B.C. having been introduced along with the socketed axe. It was not derived from our native dirks and rapiers, but represents about the mid-point of the evolution of the sword on the Continent. Our earliest types had a U-shaped hilt, as in the fine specimen from Battle (plate XVII, 1); this later became V-shaped, but in L.B.2A a new type arrived from the Continent. This was the carp's tongue sword, so called from the shape of the blade which differs from that of the leaf-shaped U and V-swords.³ The hilt of one of these was found in the Beachy Head hoard (plate XVII, 3).

Spears.—The spear-head in the Late Bronze Age was fastened to the shaft with a rivet through the socket, though the old method of attachment by thongs passed through loops on the socket still persisted. One peculiar example from Sutton End, near Petworth, has six holes drilled through the blade (fig. 60, 2), and it is recorded that six rivets were found at the same time but were not preserved. It looks as though the holes may have been intended to hold these rivets for some obscure reason—perhaps ornament.

Among the other tools characteristic of L.B.2A are socketed gouges, tanged chisels, and knives with tangs or sockets. A hoard found near the modern fort on Newhaven Head must have represented the contents of a carpenter's tool-bag, for it consisted of a socketed axe (with wing decoration), two gouges, a chisel, a knife

¹ A comparable specimen from Wales is illustrated by Sir Mortimer Wheeler in his *Prehistoric and Roman Wales*, p. 153, fig. 54, No. 1.

² *S.N.Q.*, vi, pp. 117, 181.

³ For the classification of bronze swords see *Arch.*, lxxiii (1923), pp. 253-65; H. J. E. Peake, *The Bronze Age and the Celtic World* (1922); *Antiquity*, iv (1930), pp. 157-72 (bibliography); a brief summary in *Arch. E. W.*, pp. 124-5; *P.P.S.*, xiv (1948), p. 155; xvii (1951), p. 195.

and an awl, besides the fragments of an old sword-blade (fig. 6I, 1, 2).

Brighton Loops.—A curious type of bronze object which is peculiar to Sussex is the so-called 'Sussex loop', also known as the 'Brighton loop' from the fact that seventeen of the twenty-four recorded specimens have come from places within six miles of that

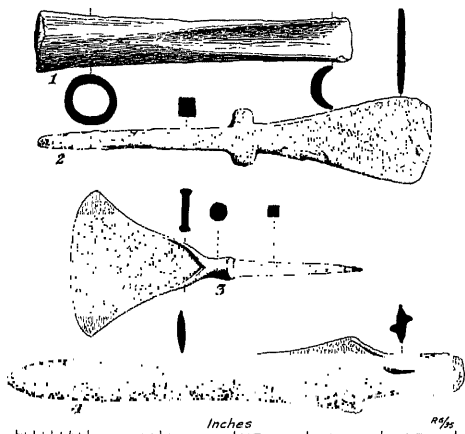


FIG. 6I.—CARPENTER'S BRONZE TOOLS ($\frac{1}{2}$)

1, Socketed gouge from Newhaven hoard (L.M.); 2, Tanged chisel from Newhaven hoard (L.M.); 3, Tanged chisel from Highdown Hill (W.M.); 4, Tanged knife from Highdown Hill (W.M.)

town. In fact, the only examples coming from a distance of more than sixteen miles from Brighton are a pair which are doubtfully reputed to have been found somewhere in Surrey. In form they resemble a peculiar kind of bracelet, best appreciated from the illustration (plate XVI, 4), but whether or not such was their use is doubtful, for they must have been very heavy and uncomfortable to wear, and too small to fit over any but the most slender wrists. The rods from which they are made are sometimes round in section,

and sometimes square, and the corners of the latter may be notched at intervals; otherwise all the specimens seem to be identical and may well be the product of a single craftsman. It is noteworthy

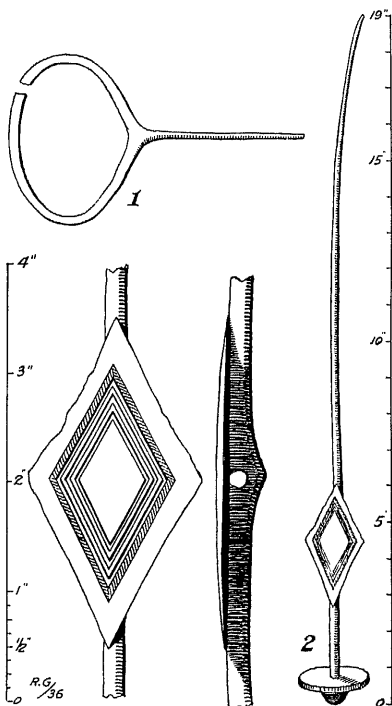


FIG. 62.—PART OF BRONZE HOARD FROM BARROW BETWEEN LEWES AND BRIGHTON

1, Ring-headed pin ($\frac{1}{4}$); 2, Pin ($\frac{1}{4}$) with detail of engraved plate and eye ($\frac{1}{8}$) (Alnwick Cas. M.)

that most of the specimens have been found in pairs. To the list compiled by the late Mr. J. E. Couchman,¹ and repeated by Grinsell,² should be added a pair of loops found in Stump Bottom, a mile north-east of Cissbury, in association with a looped spear-head (fig. 47, 1), two spiral rings and some amber beads threaded on bronze wire; and, again, four more loops found about 1918 on Falmer Hill, near Hodshrove Farm.³

The dating of these loops depends on a consideration of their associations in hoards. Thus three specimens were found at Black-rock, Brighton, together with the blade of a dirk, the bronze pommel of another, a spiral finger-ring (all imports from Schleswig-Holstein), two oval bracelets and eight palstaves of type A (plate XVI).⁴ Two more pairs of loops were found at Hollingbury in 1825, associated with a palstave of type A and a cast bronze torc, and it is significant that the palstave, the torc and one of the loops had been broken—perhaps as a votive offering.⁵ Another pair of loops was found with a skeleton in a barrow between Brighton and Lewes, with a 'ring-headed pin', and another pin, 19 inches long and slightly curved towards the point⁶ (fig. 62). The head of this latter pin is round and flat with a central boss, and is secured to the stem by means of a transverse rivet. About 4 inches below it is a lozenge-shaped plate, ornamented with engraved lines, and concealing an eye designed for the attachment of a cord or chain.⁷ The discovery of loops at Stump Bottom in association with a looped spear-head and spiral rings has already been mentioned. Finally, a pair of loops was found near East Dean (Eastbourne) with three 'ring-headed pins' like the one mentioned above. Without going into technical

¹ *S.A.C.*, lxi (1920), pp. 73-5.

² *Ibid.*, lxxii (1931), pp. 49, 50.

³ *S.N.Q.*, xii (1948), p. 60.

⁴ *P.S.A.*, xxviii (1916), p. 153; *P.P.S.*, xv (1949), p. 107.

⁵ *S.A.C.*, ii (1849), p. 266; *V.C.H. Sussex*, i, p. 319 (with illustration); *Arch.*, xxix (1842), p. 372; *Arch. J.*, v (1848), p. 323; Evans, *Bronze*, pp. 76, 378, 386, 390. (In the British Museum.)

⁶ *S.A.C.*, ii (1849), p. 265; *J.B.A.A.*, i (1846), p. 148; Evans, *Bronze*, p. 368.

⁷ This, the so-called Picardy pin, is discussed by Professor Hawkes in *P.P.S.*, viii (1942), p. 41.

details, a consideration of these associations has led Mrs. Piggott to propose a later date for the Brighton loops than had previously been held; her view, which is currently accepted, is that they should be assigned to the eighth century B.C., that is, to Hawkes's stage L.B.2A.¹

A remarkable bronze object found at St. Leonards² is believed to have been part of a mount for some kind of standard, possibly a crescentic emblem (fig. 63). Though found with five palstaves of

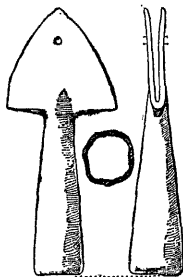


FIG. 63.—BRONZE MOUNT FOR STANDARD (?), FROM THE MARINA,
ST. LEONARDS-ON-SEA (I.L.M.) ($\frac{1}{3}$)
(*Antiquaries' Journal*)

early form this object is considered to belong to the Late Bronze Age. Two other examples have been found in England (London and Bakewell), and a third of rather different form from Canterbury has the crescentic emblem all of one piece with the socket.³

The Sompington Cauldron.—During the autumn of 1946 an unusual

¹ *P.P.S.*, xv (1949), p. 107. It should be noted, however, that when Brighton loops have been found with axes, as at Blackrock and Hollingbury, the latter have been palstaves of type A; when socketed axes, on the other hand, are found with palstaves the latter are of type C, or occasionally old and broken specimens of type B. These equations do not encourage the view that Brighton loops belong to the period in which socketed axes were in use (viz. the Late Bronze Age).

² *V.C.H. Sussex*, i (1906), p. 327 and pl. f. p. 330 (*left*).

³ *Ant. J.*, xv (1935), p. 466.

hoard was unearthed near Hill Barn, Sompting—apparently the stock of a tinker rather than of a founder.¹ Chief among the objects found was a badly damaged bronze cauldron, made up from overlapping sheets of bronze riveted together, and of such a size as probably to have held nearly 5 gallons (fig. 64). Though it was shattered beyond repair by the excavating machine which unearthed

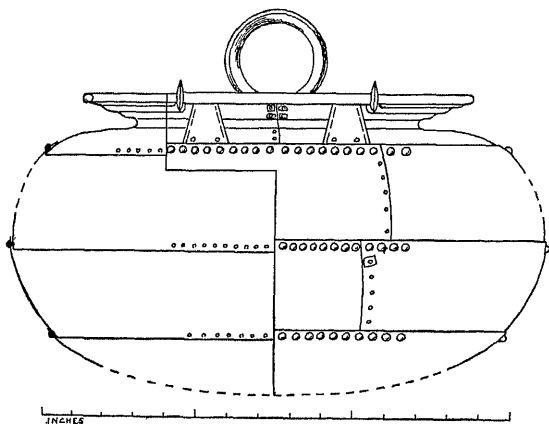


FIG. 64.—DIAGRAMMATIC RESTORATION OF BRONZE CAULDRON FROM SOMPTING.

it, a detailed examination of its remains in the Worthing Museum is well worth while, as illustrating the extraordinary degree of skill attained by the bronze workers of this period in which the art of soldering was as yet unknown. This is especially evident in the ingenious devices adopted for sealing off leaks, as, for instance, by inserting folded slips of sheet bronze through the cracks and hammering them out flat. The cauldron, which was old and worn and had often been patched and repaired before it was buried, belongs

¹ *Ant. J.*, xxviii (1948), p. 157; *S.N.Q.*, xii (1948), p. 9.

to Leeds' class B2, and is attributable to about the sixth century B.C.¹ It is the fourth specimen of its kind to be recorded as found in England, two others having been found in Wales and five in Scotland; but as no fewer than twenty-eight have come from Ireland it has been concluded that cauldrons of this type were all made in that country, where they may well have been the product of a single 'firm' in which the technical secrets were handed down from father to son.

With the cauldron were found some pieces of sheet bronze derived from still larger cauldrons which had been broken up; one piece, which had been rolled up like a scroll, had had bits cut off from its free end, possibly to serve as patches for other vessels.

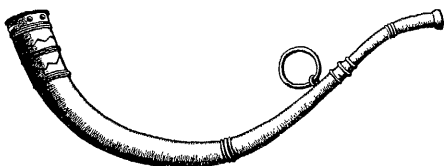


FIG. 65.—BRONZE TRUMPET FROM BATTLE (LOST) ($\frac{1}{10}$?)
(After Grose, 'Ancient Armour', Plate XIII)

Beside a curious boss-like object of sheet bronze which is so far unexplained there were also seventeen socketed axes, including several unfinished rough castings from the same mould; others have had their edges sharpened by hammering, and the whole group yielded evidence as to the expanding effect of this process on the cutting edges. On the side of one of the bronze axes was a patch of heavy incrustation of oxide of iron, suggesting that a small object of iron, since rusted away, may have lain in contact with it in the hoard. This is one of the rare indications pointing to the probability that a few iron objects may have found their way into Britain during the latter part of the Late Bronze Age.

The owner of this hoard was apparently not a founder, but a tinker and pedlar of usable axes.

¹ E. T. Leeds, *Arch.*, lxxx (1930), p. 1; Sir Cyril Fox, *Ant. J.*, (1939), p. 369.

It seems that Sussex has produced the only known example of a bronze trumpet found in England and assignable to a Late Bronze Age date. Examples are known in Ireland, and two specimens of Iron Age date have been found in England. The trumpet in question is stated to have been found when digging a well near Battle, some time prior to 1786, and the only record of its existence is an engraving by Grose¹ from which the accompanying figure (fig. 65) is a copy. It is said to be of 'cast brass' (i.e. bronze), and to have two

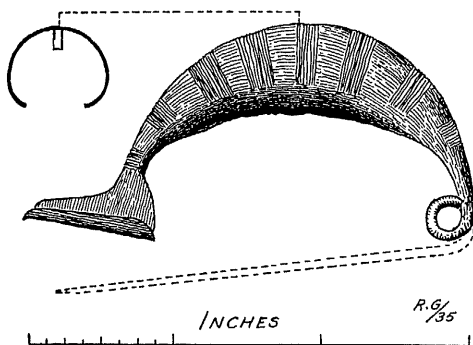


FIG. 66.—BRONZE BROOCH, HALLSTATT TYPE (EIGHTH CENTURY B.C.)
FROM CLAYTON (L.M.) ($\frac{1}{2}$)

joints and a perfect mouth-piece. It was then in the possession of a Mr. Rawle whom Gough, Camden's editor, styles 'a curious gentleman of London',² but its subsequent location is entirely unknown. If it still exists it may be that its re-publication here may cause its present whereabouts to be revealed. While bearing some resemblance to the Irish Late Bronze Age trumpets,³ perhaps the nearest analogies are to be found in the Danish S-shaped trumpets. It is remarkable that no less than three separate discoveries of Late Bronze

¹ Grose, *Ancient Armour* (1786), p. vi and pl. 13.

² Camden, *Britannia* (Gough's edn.), iv (1806), p. 231, note.

³ Eoin MacWhite, *J.R. Soc. Antiq. Ireland*, lxxv, p. 90.

Age relics have been made in the Battle district, viz. a trumpet, a sword (p. 199), and the Mountfield treasure (p. 210).

We now begin to find for the first time bronze brooches constructed on the principle of the safety-pin. Three, datable to the period under review, have been found in Sussex, and all are imports from Italy, where they belong to the Hallstatt culture. One from Clayton, at the foot of the Downs,¹ is of boat-shape (fig. 66), and is attributed to the eighth century B.C.—an interesting link with the country and century in which Romulus first traced the walls of Rome on the Palatine Hill. The other two are more developed examples attributed to the seventh century by Professor Hawkes; one of these has a more flattened bow with side-knobs, and the other is of serpentine form. Both were found somewhere between Cocking and Bignor.² These three brooches may represent trade with south Europe, though it is perhaps more likely that they may have been brought here by West Alpine folk who had previously acquired them by trade with Italy.

In the Late Bronze Age gold began to be plentiful, and was probably derived from Ireland, the Eldorado of Western Europe at this time. Several discoveries of gold ornaments have been made in Sussex. One of the commonest types is an armlet in the form of an incomplete ring, the open ends swelling out into thickened extremities. Four examples were found on the shore under Beachy Head in 1806, having fallen from the cliff-face after a landslide.³ They were found by a one-eyed man who is known to fame only by his nickname, Jumper Hutches, and they appear to have been accompanied by bronzes, including a winged axe and a carp's-tongue sword, both referable to the second phase of the Late Bronze Age (plate XVII, 2-7). One of the axes was seen protruding from the cliff-face, and it was this, apparently, which led to a search of the beach and the discovery of the gold.⁴ A similar armlet was also

¹ *P.S.A.*, xxxi (1919), p. 116, fig. 6; *S.A.C.*, lxi (1920), p. 75, fig. 6.

² *Ant. J.*, iv (1924), pp. 50-1 (illustrated); *S.A.C.*, lxv (1924), pp. 253-4.

³ *Arch.*, xvi (1812), p. 363; *S.A.C.*, xiv (1862), pp. 126-7; xv (1863), pp. 240-2.

⁴ *Arch. J.*, vi (1849), p. 59, note.

found on the beach near Eastbourne—apparently a separate discovery,¹ and four more at a later date,² also another at Cuckmere Haven.³ Three more examples were found with pottery and bones on the Downs near Patcham, but in this case one of the specimens was of bronze, plated with gold.⁴ The composition of the other two specimens was: in one case, $44\frac{1}{2}$ per cent gold and 52 per cent silver, and in the other case, gold containing about 10 per cent of silver.

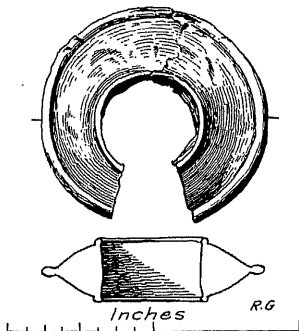


FIG. 67.—GOLD PENANNULAR RING, HOLLOW, AND OF TRIANGULAR SECTION; HIGHDOWN HILL (W.M.) ($\frac{1}{4}$)

Two other specimens were picked up on the beach at Selsey in 1925⁵ and 1937⁶ by people who, by declaring their finds to the police, were awarded their full value by the Crown—not only their value as gold, but their antiquarian value in addition (fig. 68). The weights of these armlets range from 5 oz. 132 gr. down to 388 gr.

Smaller gold rings made of twisted rods have been found at Balmer (Bormer)⁷ and Slinfold,⁸ while the little penannular rings,

¹ *S.A.C.*, viii (1856), pp. 286–7.

² *Arch. J.*, v (1848), p. 324, note.

³ *Arch. E. W.*, (1932), p. 128.

⁴ *Arch. J.*, vi (1849), pp. 58–9.

⁵ *Ant. J.*, vi (1926), pp. 308–9; *S.A.C.*, lxvii (1926), pp. 218–19.

⁶ *Ant. J.*, xvii (1937), p. 321.

⁷ Horsfield, *Lewes*, i. p. 49, and pl. iv. fig. 4.

⁸ *S.N.Q.*, iv (1932), p. 63.

sometimes called ring-money from the supposition that they may have served as a kind of currency, have come to light at Bracklesham,¹ Rustington,² and the River Cuckmere.² A hollow penannular ring of triangular section has already been alluded to, as having been found at Highdown Hill, near Worthing (fig. 67), and this type is of special interest in that it is elsewhere confined to the 'Highland Zone' in the west and north of Britain and Ireland.³ It

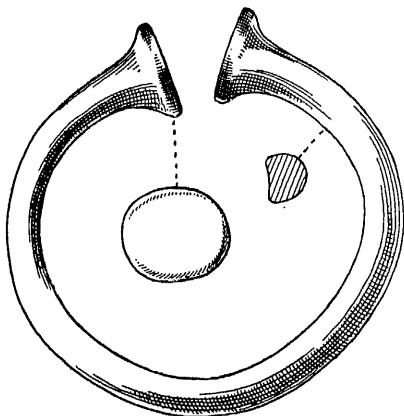


FIG. 68.—GOLD BRACELET, SELSEY (B.M.) ($\frac{1}{2}$)

consists of three separate plates of very thin gold (probably alloyed with silver), the edges being joined by being turned over and hammered, without soldering. The weight is 51.36 grains. Two closely similar specimens have since been found by Miss P. A. M. Keef in the ditch of the small hill-fort on Harting Beacon, five miles south-east of Petersfield.⁴ In the British Museum is also a small torc, or collar of twisted gold, from somewhere in Sussex.⁵

¹ *Arch. J.*, viii (1851), p. 112, and fig. 1.

² In the British Museum.

³ *Ant. J.*, v (1925), pp. 141-4.

⁴ *Ibid.*, xxxiii, p. 204.

⁵ For torcs in general see *Man*, August 1932, No. 222.

Mention of a torc brings us painfully, but inevitably, to the tragedy of the Mountfield Treasure.¹ In January 1863, while a labourer was ploughing the Barn Field on Taylor Farm, Mountfield, near Battle, the point of his ploughshare became entangled in a piece of bright metal. Looking round, he saw a hole in the ground in which he found several more pieces of similar metal. He collected them together and took them home to his master who told him to keep them, thinking that they were old brass. The man, however, made several attempts to sell them as old brass, but without success, until he finally disposed of the lot to a Hastings man for 5s. 6d. The latter, suspecting them to be of gold, sold them for nearly £530 to a dealer in London who promptly melted them down. At this point the authorities heard of it, and the Crown put in a claim to the treasure, an inquest was held, and the gold found to be Treasure Trove. The two men who were concerned in disposing of it were then put on their trial at Lewes, found guilty of concealing Treasure Trove, and, after unsuccessfully appealing, fined the full value of the gold.² The objects found appear from the report of the inquest to have consisted of a large torc, about 3 feet long, with trumpet-

¹ S.A.C., xv (1863), pp. 238-40; xvi, pp. 310-11; P.S.A. (2nd Series), ii, pp. 247-8.

² Inasmuch as ancient gold has not infrequently been found in Sussex, and particularly in the neighbourhood of Selsey Bill, it is desirable that the public should understand the law relating to Treasure Trove, especially as it is overwhelmingly in the interests of the finder of treasure to comply with the law. Any one finding any object of gold or silver should declare it to the Police or to the Coroner without delay. If the latter upon inquiry finds the object to be Treasure Trove it becomes the property of the Crown, and the finder will *either* receive from the Crown the full market value (not merely the intrinsic value), *or* in some cases be allowed to retain the object; in the latter case, if the finder desires it, the British Museum will sell it for him at the best price obtainable. To attempt to sell such objects to a dealer without reporting them to the Coroner is not only likely to fetch a less price than might otherwise be obtained, but renders the seller liable to a heavy fine or imprisonment. The author heard by chance of the loss of a massive gold armlet which was found on the foreshore at Selsey many years ago, but which, through the finder being unaware of the law, was sold to a dealer and melted down.

It may be added that finders of treasure may, if preferred, communicate with the Director of the British Museum, instead of with the Coroner.

shaped terminals and with several gold rings threaded on to it; some bracelets and little penannular rings of gold, together with raw lumps of the metal. The whole, which weighed between 12 and 13 lb. (including some pieces which were not disposed of with the main lot) was valued at £650, and may have been the stock-in-trade of an itinerant goldsmith, who, on the approach of danger, buried his stock in a sack or chest, and never lived to reclaim it.

NATIVES AND NEW-COMERS

In the Late Bronze Age we have seen for the first time evidence of settled agricultural life, with scattered farms surrounded by their fields—mainly on the Downs and on the coastal plain. We have seen new bronze types introduced, together with new and improved methods and ideas, but it was very largely the natives who took up these ideas and profited by them, making full use of nature's supply of copper in Britain and Ireland. The persistence and continued development of the native palstave in spite of the arrival of the much superior socketed axe would seem to indicate that the bronze-founding trade still remained very largely in the hands of the descendants of the native Middle Bronze Age folk, who may have formed a separate social class. Though some fusion between native and new-comer—at least in ideas and technique—is suggested by some of the pottery, yet the remains at Playden point to the possibility of a separate native element which may have taken to the forests or have maintained its nomadic pastoral life alongside of the agricultural settlements of the newcomers. Parallels readily suggest themselves in the accounts of the patriarchs in Palestine, where the nomadic pastoralists wandered and pitched their tents among a sparsely settled agricultural community, practising themselves a kind of nomadic agriculture. At the present day we need not look so far afield as the Bedouin for a survival of this phenomenon, for we still have in the gipsies of our own country a nomad population—much attenuated, it is true—but still carrying on the old traditions of pastoralism and metal-working, now reduced to horse-dealing and mending pots and pans. We cannot go so far as to suggest that our gipsies are

descended from the Middle Bronze Age folk, but the persistence of the phenomenon of nomad life alongside settled communities, together with the preservation of the two main occupations in however debased a form, is sufficiently striking to deserve notice.

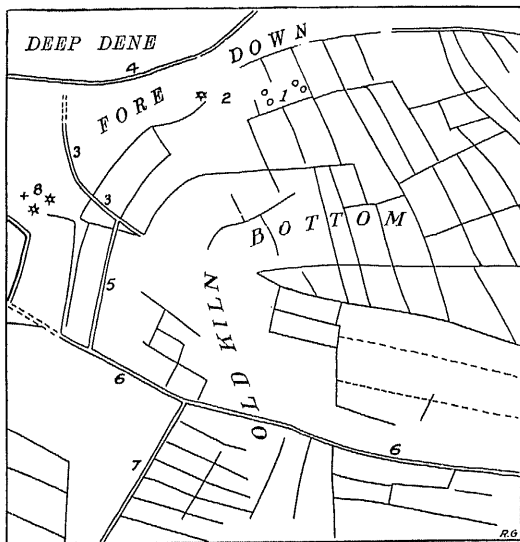


FIG. 69.—KEY-PLAN TO PLATE XXI

1. Four hut-sites excavated by Rev. W. Budgen, F.S.A., and Col. Gray, and yielding pottery suggesting Late Bronze Age 3 overlapping with Iron Age A1. These appear to be

the
ably

6) and opening into the cross-ridge

6. Main field-way, traceable for a long way towards Jevington; it is contemporary with the field-system as a whole.

7. Branch field-way of double-lynchet form, leading from the main road southwards.

8. One large and two small barrows.

The
demarcated by lyn-
-photograph.
quently these fields,

Approximate Scale: 1 inch to about 250 feet.



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PLATE XXI.—AIR-PHOTOGRAPH OF A SPECIMEN OF THE CELTIC FIELD-SYSTEM
ON FORD DOWN, LULLINGTON
For interpretation see key-plan opposite



PLATE XXII

Above: THE CABURN, SEEN FROM RANSCOMBE CAMP

A. C. Roper

Below: IMPRESSIONS OF PALISADE POSTS IN RAMPART ERECTED AT THE
CABURN AGAINST THE ROMANS

J. B. Radford

TABLE OF ASSOCIATED BRONZE IMPLEMENTS AND HOARDS
FROM SUSSEX

In the following Table every effort has been made to include all cases in which two or more objects of bronze, assignable to the Bronze Age, have been found together.¹ The hoards have been listed approximately in chronological order so as to bring out as clearly as possible the contemporaneity or succession of the various types of objects.

Since at any given time a new and unused tool *may* be of a more advanced pattern than one that is old and worn out, an attempt has been made to distinguish between tools that are in prime condition from those which are unsharpened rough-castings, on the one hand, and, on the other hand, from specimens which are so worn or broken as to have been unusable at the time of their inclusion in the hoard. An italic figure, therefore, in the table indicates the number of rough castings present, while a figure in brackets gives the number of worn-out or grossly fragmentary specimens. A simple figure indicates the number of specimens in prime condition, or else those of which the condition is unspecified.

The letter *x* denotes the presence of an unknown number of specimens. In the first column M stands for 'Museum', and MM for 'Museums'.

While the threefold classification of palstaves (A, B and C) is a useful rough guide, in actual practice many specimens may be of intermediate form. Sometimes this has been indicated by inserting the letters '(A-B)' above the number of specimens, to denote that the latter are of a form intermediate between A and B.

In the case of No. 24 the asterisks indicate which of the implements are preserved in the Worthing Museum.

¹ An exception is made in the case of Brighton loops found two or more together, but not associated with other objects.

TABLE OF ASSOCIATED BRONZE

No.	Provenance and Present Location	Flanged Axes	Palstaves Type A	Palstaves Type B	Looped Spears	Dirks and Rapiers
1	JEVINGTON (Coombe Hill Barrow) Lewes M.	4				
2	BARNHAM One in Lewes M.		8			
3	BILLINGSHURST British M.		4	I		
4	BRIGHTON (Blackrock) Brighton M. (Joan)		5 3			I
5	BRIGHTON (Hollingbury) British M.		I			
6	BEXHILL (Cooden Beach) 1 in Lewes M.; 3 in private Collections; 2 in Bexhill M.		(A-B) 6			
7	ST. LEONARDS (Marina) Hastings M.		(A-B) 4 (1)			
8	LEWES and BRIGHTON (between) Alnwick Castle M.					
9	SOMPTING (Stump Bottom) Private Collection				I	
10	SELSEY (Bracklesham Bay) Alnwick Castle M.	I				I
11	BOGNOR (near) British M. and Blackmore M. (Salisbury)			6		
12	BOGNOR (Marshall Estate, 1927) Private Collection			(90)		
13	WALDRON (Little London Farm) Lewes M.			5		
14	EAST DEAN (Eastbourne) (Pea Down) British M.					

IMPLEMENTS AND HOARDS

Brighton Loops	Spiral Rings	Torcs	Armlets	'Cakes' and Jets	Other Objects, Remarks and References
					Faint incipient stop-ridges in some. 3 broken across middle (one frag. missing). Votice offering? (Plate XIV.)
					Merchant's hoard. <i>S.A.C.</i> , xvii, pp. 254-5.
					Merchant's hoard; B-palstave looped. <i>S.A.C.</i> , xxvii, p. 183.
3	1		2		1 bronze handle for dirk. Mer- chant's hoard. <i>P.S.A.</i> , xxviii, p. 157. (Plate XVI.)
4	3	1			<i>Arch. J.</i> , v, p. 323; &c.
					Merchant's hoard, found in hole on beach. <i>S.A.C.</i> , xxxviii, pp. 198-9.
				1	Bronze mount for Standard? <i>V.C.H.Sx.</i> , i, p. 327; <i>Ant. J.</i> , xv, pp. 466-7. (Fig. 63.)
2					Pin 19 in. long; bronze racket- shaped object. <i>S.A.C.</i> , ii, p. 265. (Fig. 62.)
2	2				Amber bead threaded on bronze wire. <i>Ant. J.</i> , vi, p. 444. (Fig. 47, 1.)
					<i>Geograph. J.</i> , Sept., 1912.
					Merchant's hoard. Evans, <i>Bronze</i> p. 80.
				10	18 looped and approaching C-form. Founder's hoard. <i>S.A.C.</i> , lxvi, p. 225.
					Merchant's hoard; all with loops, and all cast from the same mould. <i>S.A.C.</i> , ix, p. 366.
2					3 bronze racket-shaped objects. <i>Ant. J.</i> , xvi, p. 461.

TABLE OF ASSOCIATED BRONZE

No.	Provenance and Present Location	Flanged Axe	Palstaves Type B	Dark	Palstaves Type C	Palstaves Type ?	Socket Axes (no Wings)	Socket Axes Type ?	Winged Axes	Socket Axes with Wings	Leaf Swords
15	BARCOMBE MILLS Present Location unknown							15			
16	BRIGHTON (near) Brighton M.		(3)				(1)				
17	BRIGHTON (Brading Rd.) Brighton M.			(1)	1						
18	WEST BLATCHINGTON, HOVE Hove M.				2				(1)		
19	EASTBOURNE (Beachy Head) British M.							2	1 + 2?		
20	ELSTED (Beacon Hill) Private Collections				5						
21	FIRLE BEACON (Lost)							x	x		
22	FLANSHAM, near Bognor Littlehampton M. (loan)						1 (6)				(3)
23	HIGHDOWN HILL (Camp, 1901) Worthing M.										
25	LEWES British M.				5	1	1			1	
26	NEWHAVEN Lewes M.									1	(1)
27	PLUMPTON PLAIN (Site B) Brighton M.								(1)		
28	SIDLESHAM Brighton M.	(1)	(5)				3		(1)		
29	SOUTH HEIGHTON (Stump Bottom) Brighton M.							(1)			
30	WILMINGTON Lewes M.				(12)		(11)			(5)	(1)
31	WORTHING (South Farm Road) Worthing M.				11		1			1	
32	WORTHING (40 acres brickfield). British, Ashmolean, Pitt Rivers (Oxford) and Worthing MM.				14 (1)	14	1 4 (1)	5	1	1	
33	YAPTON British M.						6			2	
34	SOMPTING (Hill Barn) Worthing M.						5 10			2	
35	PORTSLADE (Whitelot Bottom) Brighton M. (loan)				1		(1)				

IMPLEMENTS AND HOARDS (continued)

Curly Tongue Swords	Riveted Spears	Plain Rings	Socketed Gauges	Tanged Chisels	Tanged Knives	Socketed Knives	Atlatls	Gold Bracelets	'Cakes' and jets	Other Objects, Remarks and References
										<i>S.A.C.</i> , lxxii, p. 59.
										<i>S.A.C.</i> , lxxxix, p. 9.
(1)								4	3	All bronzes now lost except sword and 1 winged axe. <i>Arch.</i> , xvi, p. 363; &c. (Plate XVII.)
										Merchant's hoard. <i>P.S.A.</i> , xxiii, p. 376.
(1)										Much else said to have been found, but no details available. Horsfield, <i>Lewes</i> , i, p. 45.
(1)			(3)			(1)			26	Founder's hoard. 2 broken ferrules. <i>S.A.C.</i> , lxxxi, p. 205.
				1	1					1 gold penannular ring (hollow) of triangular section. Associations uncertain. <i>P.S.A.</i> , xviii, pp. 386-8.
			1*	1*						Axe lost. Association uncertain; see C. H. (1929), p. 10. Worthing Public Library.
									13	Founder's hoard.
			2	1		1	1			Cap for handle of knife. Set of carpenter's tools.
					1					On hut-floor associated with pottery. <i>P.P.S.</i> , i, pp. 32-3.
										Founder's hoard.
		1								1 hollow hemispherical boss with interior stem.
									+	Bronze mould for socketed axes (no wings). Founder's hoard, found in pot (lost). <i>S.A.C.</i> , xiv, p. 171. (Fig. 59.)
										Merchant's hoard. M. Frost, <i>Early History of Worthing</i> (1929), pp. 23-8 (illustr.).
									+	Founder's hoard; found in pot, type B5. <i>Ant. J.</i> , iv, pp. 220-1.
			6						1	<i>S.A.C.</i> , xviii, p. 195.
(1)	2									Belongs properly to the Iron Age. 1 frag. La Tène 1 brooch; 1 swan-necked pin; 1 ring- headed pin; 1 nail-pin; 1 strap-end (?). <i>P.S.A.</i> , xx, p. 345.

Chapter IX

THE IRON AGE

Inde minutatim processit ferreus ensis
Versaque in opprobrium species est falcis ahenac,
Et ferro coepere solum proscindere terrae.

LUCRETIVS

IN Asia Minor iron had been known and worked at least as early as 2000 B.C. The working of the ores was already known at a very early date, but seldom practised.¹ In general the earliest iron objects were made from meteoric iron, the 'metal from heaven', which contains a large proportion of nickel, and which was so costly that a Hittite tablet gives its value as at least six times its weight in silver.² Iron appears to have been first mined in Asia Minor, and when the Hittite Empire collapsed about 1200 B.C. the knowledge of its working was spread far and wide by such wandering peoples as the Philistines, who introduced it to Palestine at about that time. Even in Homer, who deals with a period which should be within a few years after 1200 B.C., weapons and armour were still normally of bronze, while iron was rarely used for small tools and was still of sufficient value to be awarded as a prize, like gold or silver.³

Beyond the confines of these ancient Empires the knowledge of iron travelled slowly, for the iron sword did not appear in the Eastern Alps before 900 B.C., and it was about 500 B.C. before the new metal became established in Britain. How early it began to appear in our own country is uncertain; chemical analysis of the whetstones found in the Late Bronze Age settlements on Plumpton Plain hints at the possibility of iron tools having been used on them.⁴ While, however, the Late Bronze Age was in some ways culturally akin to the Iron Age rather than to the Middle Bronze Age, our Iron

¹ *Antiquity*, x (1936), pp. 5-24, 355-7.

³ *Iliad*, xxiii, 261, 826-50.

² *Ibid.*, ii (1928), p. 226.

⁴ *P.P.S.*, i (1935), p. 36.

Age proper begins with the popularization of iron about 500 B.C. by another wave of immigrants from the Continent.

The Iron Age, thus initiated, lasted on until the Roman conquest in A.D. 43, and is remarkable for the increasing diversity of local pottery types. These indicate the presence of different cultural groups which arrived at various times within the Iron Age from different parts of the Continent, bringing with them pottery and other goods characteristic of the continental culture from which each sprang. On arrival in this country some blending of groups took place, while others developed their own peculiar styles in isolation. The increasingly local character of the pottery emphasizes the extent to which the population had by now become bound to the soil through the permanent character of their agriculture—a state of affairs with which that of the Middle Bronze Age may be contrasted, in which the widespread distribution of the same pottery types points to a high degree of mobility in the population, associated with a predominantly pastoral life.

We owe our knowledge of the Iron Age in Sussex principally to Professor Hawkes and his masterly analyses of the pottery recovered from the various excavated sites, and the sketch that follows is to a large extent based upon his conclusions.¹ The detailed discussion of the pottery itself is essentially technical, and, though necessary for students, is likely to repel the general reader for whom this book is primarily intended. Very little will therefore be said on this subject here, especially as it has been very ably summarized for students by Dr. A. E. Wilson and Mr. G. P. Burstow.²

A considerable number of sites of settlements of one kind or another have been examined in Sussex by limited excavations which have yielded data from which cultural and chronological conclusions have been drawn. These are shown graphically in the chronological chart (fig. 70) in which the horizontal lines indicate successive

¹ Dr. Kathleen M. Kenyon has proposed some modifications of Professor Hawkes's views in the *8th Annual Report of the Institute of Archaeology* (London, 1952), pp. 50–8.

² *S.A.C.*, lxxxvii (1948), p. 77. The chapter devoted to this subject in the first edition of this book is here omitted.

phases (from 800 B.C., above, to A.D. 500, below), while the vertical columns represent the range of date of individual sites, and their fortified or unfortified condition. The distribution map (fig. 71) shows the topographical distribution of the same sites, and their relation to the chalk Downs and the river valleys. It will be observed that in order to gain breadth of vision some chronological overlap has been allowed in fig. 70, in order to indicate the relation of some of the Iron Age sites to their counterparts in the Late Bronze and Roman periods. The probable significance of these data will be discussed in due course.

The Iron Age in Sussex falls into three phases, marked by the arrival of the main immigrant cultures, and this will provide a convenient basis for the study of the period.

PHASE I (500–250 B.C.)

We have said that iron was first popularized in Britain about 500 B.C. by immigrants from the Continent. These immigrations were in series with those of the Late Bronze Age, but now we are concerned with fresh peoples which belonged to a culture known as Hallstatt—after a place in Austria where it is typically represented. The Hallstatt arrivals came over as small parties of refugees, displaced by the pressure of the Germans who were advancing south-westwards on the lower Rhine area from lands nearer the Baltic. Those parties which arrived before 500 B.C. probably knew and used iron, but they were too few to exert much influence. One of these earlier arrivals settled on the shelf of lower chalk which lies at the foot of the escarpment of the Downs at Eastbourne, and left behind them some vessels which are probably unique in Britain (plate XXV, 1). They had been painted a reddish brown colour with (in one case) lozenge designs in black, and the fact that they had been made locally is shown by their being ‘wasters’ which had lost their shape before being fired. They were, however, made by foreigners, and the nearest parallels are found among the Hallstatt Celts of south-western Germany, dating from between 700 and 500 B.C.¹ These, then, appear to have been some of the earliest refugees displaced

¹ *Ant. J.*, ii (1922), pp. 354–60; *S.A.C.*, lxiii (1922), p. 241.

by the slow advance of the German hordes, and they came from a country where iron was already known.

From 500 B.C. we have fairly frequent remains of pottery and settlements of the latest Hallstatt new-comers who now began to arrive in larger numbers. They came, broadly speaking, from the Low Countries, but there were others coming rather later from the Marne district of France who settled in Wessex, and are most typically represented at All Cannings Cross in Wiltshire. Those who settled in Sussex blended with the Late Bronze Age natives, to whom they taught the superior virtues of iron. As a result the use of bronze for cutting implements and weapons immediately ceases—an abrupt transition which stands in marked contrast with the slow supersession of flint by bronze. From now on iron holds the field, and bronze is reserved for ornaments and fittings. One bronze hoard from Whitclot Bottom, Portslade, can be referred to the first phase of our Iron Age, for besides some old and broken Bronze Age relics it contains a 'swan's-neck' pin, a ring-headed pin and part of a safety-pin, all of which belong to this part of the Iron Age,¹ showing that the battered remains of an axe and a spear-head that were found with them were but founder's material waiting to be converted into pins or other ornaments. It is significant that the only axe in this hoard that is in good condition is a palstave of type C, thus confirming the evidence afforded by other hoards that this form of axe remained popular right down to the end of the Late Bronze Age. Another swan's-neck pin was found with a little bronze figure of a boar at Woodendean, near Brighton,² and a similar bronze boar was found with a brooch of the third century B.C. on an early settlement site at Kemp Town, Brighton.³ No doubt these figures were emblems of some kind—the prototypes of our 'lucky pigs' (fig. 72).

The Celtic field-system continued without change, and some of the sites of this period continued under cultivation for a thousand years, until the Saxons came. The most important of these agricultural settlements is that which was situated on Park Brow, a mile

¹ *Arch. J.*, xci (1935), pp. 269-95.

² *P.S.A.*, xxi (1907), pp. 489-90; *Brighton Herald*, 5 January 1918. A third bronze boar is in the Lewes Museum (provenance unknown).

north-east of Cissbury (fig. 73), where remains of the dwellings of Late Hallstatt settlers were uncovered during excavations by Mr. Garnet R. Wolseley,¹ and later by the Society of Antiquaries under Lieut.-Colonel Hawley.² A settlement ('Park Brow I') consisting of hut-sites and store-pits was found within a few hundred feet of the

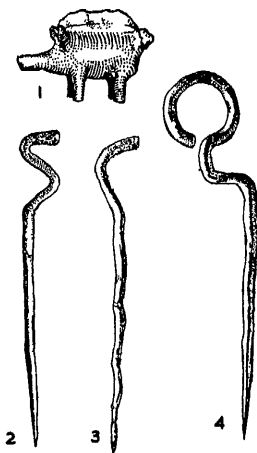


FIG. 72.—SWAN'S-NECK AND RING-HEADED PINS, AND BRONZE BOAR
(B'TON M.) ($\frac{2}{8}$)

1, 2, Woodingdean, Brighton; 3, 4, found with bronze axes, &c.,
in Whitelot Bottom, Portslade

Late Bronze Age hamlet already described, the huts being of a totally different character in this case. The larger of the two which were examined had been supported by five pairs of stout wooden pillars in a row, each pillar being about 20 inches in diameter, and close by were two store-pits filled with ashes and other refuse. Another pit was bell-shaped, being 8 feet deep, 6 feet wide at the mouth, and expanding to 10 feet wide at the bottom. These pits, which, to judge

¹ *Ant. J.*, iv (1924), pp. 347-59.

² *Arch.*, lxxvi (1927), pp. 30-40.

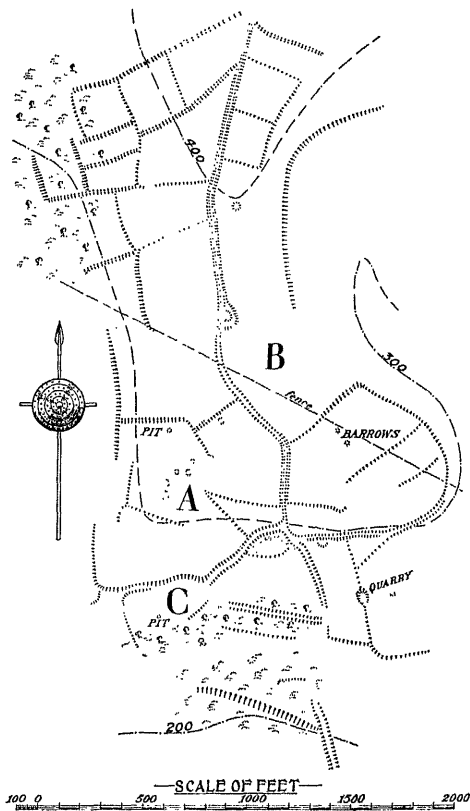


FIG. 73.—PARK BROW, SOMPTING: SETTLEMENTS, FIELDS AND ROADS

A, Late Bronze Age hut-sites; B, Late Hallstatt Settlement (500-250 B.C.)
C, Marnian and Roman Settlement (250 B.C.-A.D. 300)

Survey by E.C.C.

from their unweathered sides, must have been under cover—either under the floors of the huts or protected by a separate roof—are a distinctive feature of our Iron Age dwellings, for they seldom occur in the Late Bronze Age sites so far excavated, though their use occasionally extended into the Roman period. They are no doubt the subterranean granaries to which Diodorus Siculus alludes when describing the habits of the Britons of his time (44 B.C.),¹ and there is no reason to believe that any of them served as actual dwellings underground. Many were filled up with layer upon layer of rubbish which accumulated during the occupation of such sites, but after the pits had ceased to be used for storage. Charred grain was actually found in one of the pits at Park Brow. Closely similar pits are still used in parts of south-east Europe for dwelling, storage and refuse.²

Of great interest and importance is the pottery of which the best vessels were found lying broken in holes in the ground.³ Among the other discoveries is a curious bent silver ring which comes from Switzerland, where it can be dated to the period 325–250 B.C. and thus belongs to the latter part of this phase. This is not only a most valuable link for dating our contemporary remains, but is probably one of the earliest objects of silver to be found in the country. This corresponds again in date to an iron safety-pin of La Tène I type, which was found on a neighbouring site near Findon Park; that is, its form is that which is found in the Continental culture of La Tène (a place in Western Switzerland) in its earliest stage. An iron ring-headed pin of the third century B.C. was also found in the Park Brow settlement. Spindle-whorls, triangular loom-weights of clay, and a bone weaving-comb decorated with incised ring-and-dot designs, provide evidence of spinning and weaving; saddle-querns and carbonized grain indicate agriculture, though the outlines of the contemporary fields have been either perpetuated or obliterated by later prehistoric and Roman ploughing; and the bones of oxen, pigs, horses, sheep and a dog tell of continued pastoral life side by side with settled agriculture.

¹ Diodorus Siculus, v, 21.

² *Antiquity*, x (1936), pp. 25–36.

³ Some of the pottery and other objects may be seen at the British Museum.

An important feature, because of its rarity in the Iron Age, is a cremation burial enclosed in a small urn of Hallstatt type. For the most part our knowledge of the funerary habits of this period is a blank, as burials are seldom found.

We shall see in due course that during the later part of the Iron Age and throughout the Roman period the successors of our Hallstatt settlers lived farther down the southern slope of Park Brow ('Park Brow II'), and continued to till the same fields, so that village life flourished on this hill for about 1,500 years—the full life-time of the Celtic field-system in Britain.

Other small settlements belonging to our Phase I have been located on the hills immediately to the west of Park Brow, notably one ('Findon Park site') lying immediately to the south of Dead Man's Clump. Eleven store-pits were excavated here by Sir Cyril Fox and Mr. Garnet Wolseley in 1925-7, and the occupation was shown to last down to the end of Phase II.¹ Other village-sites of Phase I have been located by finds of surface pottery, associated with lynchets, on Stoke Down, near Chichester (near the flint-mines), and on the spurs that lie under the east escarpment of Bow Hill. There is also a site consisting of four shallow pits close to Winchester's Pond on Fore Down, Lullington, excavated a few years ago by the late Rev. W. Budgen, F.S.A.,² the pottery of which (unpublished) suggests an overlap of Late Bronze Age and Earliest Iron Age features. There is no doubt that very many other such sites exist, often overlaid and obscured by later prehistoric or Romano-British agriculture.

Another feature of this phase was the tendency to construct small and relatively feeble strongholds on hill-tops. Some of these were four-sided and appear to be related to the rectangular earthworks of the Late Bronze Age to which allusion has been made. One of these is to be found on the top of Thundersbarrow Hill, behind Shoreham,³ and consists of a four-sided enclosure 250 feet in diameter, surrounded by a slight ditch and bank, with two entrances on opposite sides. The pottery in the ditch is of early character. At

¹ *Ant. J.*, viii (1928), pp. 449-60.

² *S.A.C.*, lxviii (1927), p. 285; lxix (1928), p. 232; lxxiii (1932), p. 205.

³ *Ant. J.*, xiii (1933), pp. 109-21.

a slightly later date, still in this phase, this small fort was enlarged by surrounding it with a stronger earthwork, nearly circular in plan, and some 450 to 500 feet in diameter. Neither of these earthworks appears to have been strengthened with a palisade, nor did the interior area exhibit traces of permanent habitation. The inference is that the fort was intended as a refuge for the occupants of neighbouring farms in times of danger from hostile raids. It was subsequently much mutilated by a farm-site and cultivation during the Roman period.

A comparable four-sided enclosure of feeble profile was constructed on the top of Hollingbury Hill, two and a half miles north of Brighton Palace Pier.¹ This is not the fort that we see there to-day; the latter was an enlargement of the earlier enclosure made, in all probability, at or shortly before the end of Phase I. Only one side of the earlier enclosure survives, the rest being buried under the later earthwork which was strengthened with timberwork, probably with a view to permanent occupation. As such we shall consider it along with other examples in the next section.

Wolstonbury is another hill-fort, strongly placed, but of feeble profile, which is to be attributed to this phase, and which, as a result of excavations carried out by the late Madame de Marcees Van Swinderen and the author in 1929, appears to have been a place of temporary refuge only.² A peculiarity of this fort is the fact that the ditch is on the inner (and upper) side of its bank—an inexplicable reversion of the normal rule, but one which has a close parallel in Rybury Camp, near Devizes in Wiltshire.

On Harrow Hill, near Worthing, is a small, nearly square hill-top fort, enclosing about three-quarters of an acre, and overlying some of the Neolithic flint-mines (plate VII). This was examined by the Worthing Archaeological Society under the direction of Mr. G. A. Holleyman in 1936, when post-holes of timber palisades and gateway were revealed, but no evidence of occupation in the interior. A very few shards of pottery dated the fort to this phase of the Iron Age.³

¹ *Ant. J.*, xii (1932), pp. 2, 3, 7.

² *S.A.C.*, lxxi (1930), pp. 237-45.

³ *Ibid.*, lxxviii (1937), p. 230.

Several other small hill-forts with relatively feeble defences exist on the Downs and may perhaps be assignable to Phase I on the analogy of those just mentioned, but so far as is known at present only one hill-fort was constructed and properly fortified for permanent occupation in this phase. This is the small fort on Highdown Hill, near Worthing, which was examined by the Worthing Archaeological Society under the direction of Dr. A. E. Wilson in 1939 and 1947.¹ This fort, which encloses a roughly rectangular area comprising a little under 2 acres, overlies the Late Bronze Age hut already described (p. 187). The ditch, as originally cut, was some 6 feet deep and 10 feet wide, and was separated by a flat berm from the chalk rampart which was held up by two rows of wooden posts in a manner similar to that of the later hill-forts presently to be described. On the south side the rampart may have been faced with a revetment of flints and chalk blocks, and at some period not yet determined a small outer bank and ditch was added. On the north side of the fort the native chalk is covered with heavy tertiary clay, so that the defences here have lost their original form, and present merely a bare scarp owing to the labile character of the clay. The single entrance was on the east side, to the north of the chalk-pit, where the post-holes of the great wooden gate were found in line with the ends of the rampart.

The period of the original construction of the fort is given by a considerable quantity of pottery found under the primary silt of the ditch, namely, the beginning of the Iron Age, or about the fifth century B.C. The bedding-trench of the wall of a rectangular hut of about this period was found in the interior of the fort, so that there is definite evidence of something like permanent occupation of this site. War-scares also occurred, and the silted-up ditch was re-cut once, if not twice, during Phase I, the material so obtained being used to heighten the rampart, and the latter was repaired with a new timber stockade. The entrance also was altered, being moved bodily a few feet to the south, and the old roadway through the gate was buried under a new extension of the rampart. The new roadway crossed the old silted-up ditch and cut through the old rampart; no

¹ *Ibid.*, lxxxix (1940), p. 173; lxxxix (1950), p. 163.

post-holes, however, were found where the new gate should have been. The last fortification of this site during this phase seems to have taken place between 300 and 250 B.C., as suggested by some of the pottery; after the latter date the fort was abandoned for over five hundred years.

Hill-top settlements marked by the occurrence of pottery belonging to this phase of the Iron Age, but unaccompanied by contemporary defences, existed at Cissbury and at the Trundle. As there seem never to have been lynchets at the latter site which is surrounded by virgin downland, the function of this settlement and its relation to the great hill-fort that superseded it are obscure.

On Castle Hill, Newhaven, there must have been a considerable settlement of Iron Age newcomers during this phase, and, if one may judge from the quantity of pottery which they left behind, they must have blended with the Late Bronze Age folk who, as we have already seen, preceded them on this site. Unfortunately the total destruction of the large hill-fort which is known to have existed here makes it impossible to reconstruct the history of the site during the Iron Age in any other way than by noting the succession of pottery types.

Towards the end of Phase I, at a date provisionally put at about 300 B.C., a small group of fresh immigrants settled on Mount Caburn (plate XXII), two miles south-east of Lewes.¹ From their pottery these people appear to be related to the Hallstatt folk of Wessex, and may represent either an incursion from Wessex or a fresh immigration of their relatives from the Continent. The pottery in question is, in general, modelled on the form of certain Continental bronze vessels distinguished by angular necks and shoulders, and is frequently coloured red or reddish-brown in further imitation of the metal prototypes (plate XXVIII, 1). These people, conveniently known as the 'Caburn I' people, occupied the hill without fortifying it until about 100 B.C., as we shall see later.²

The settlements we have been considering are all situated on the

¹ The hill itself is Mount Caburn, as marked on the O.S. maps, but the hill-fort that was constructed later is usually known as 'The Caburn'.

² S.A.C., lxxx (1939), p. 217.

chalk. No remains of this phase have been reported from the Weald, nor have we any evidence that iron was mined in Sussex at this stage. On the coastal plain, however, two settlements are known: one was at Selsey,¹ and the other at Kingston Buci,² and, as we have seen, both had been preceded by Late Bronze Age villages.

Before passing on, reference must be made to two allusions to British agriculture at this period, made by early explorers and recorded by classical writers. Though they do not refer specifically to Sussex they illuminate the archaeological findings regarding the agriculture of the middle of the fourth century B.C. and are therefore relevant here. The Massilian explorer Pytheas, who visited Britain about 330 B.C. observed in the southern districts an abundance of wheat in the fields, and noted that it had to be threshed in covered barns owing to the inclemency of the climate. He also remarked that some of the wheat was mixed with honey to make a kind of beer.³ Hecataeus of Abdera, on the other hand, a contemporary of Pytheas, had a greater regard for our climate—perhaps from less intimate knowledge of it—and alleged that on that account the fertile soil bore two harvests a year.⁴ Both reports emphasize the flourishing state of British agriculture, but we are inclined to trust Pytheas regarding the weather, because the latter is known to have undergone rapid degeneration after about 400 B.C. Such relative humidity is, in fact, almost a necessary assumption if the numerous Downland settlements of which we have evidence were to have an adequate water-supply, and if the chalk with its shallow top-soil were to be sufficiently fertile to bear such satisfactory harvests.

The picture, then, of the first phase of our Iron Age is one of settled agricultural units on the chalk Downs with some cohesion developing between local groups, leading to the adoption of common strongholds for refuge in danger, and perhaps the seeds of tribal organization.

¹ *Ant. J.*, xiv (1934), pp. 42-4.

² *S.A.C.*, lxxii (1931), pp. 185-7, 191-8.

³ Strabo, IV, v, 5. See Elton, *Origins of English History* (1882), p. 32.

⁴ Diodorus Siculus, II, iii, 47.

PHASE II (250-50 B.C., or a little later)

The second phase of the Iron Age is marked by the development of the great hill-forts. Farm-life went on as before, as has been proved at Park Brow and Findon Park, but now for the first time we find in addition something suggestive of the city, with much that that term implies in regard to organization and commerce, peace and war.

Walled cities were early developed in the cradle-lands of civilization in the Near East, as one of the products of that settled life which was made possible by agriculture. On the plains of Mesopotamia they appeared at least as early as the fourth millennium before Christ, while in the hill-country of Palestine they were a conspicuous feature from the third millennium down to the coming of the Romans. Many of the cities of which the names are familiar to us in the Old Testament were no more than 5 or 6 acres in area, and were situated on heights that were remote from water—always a source of danger in war. Precisely similar was the city of Troy which contained about 6 acres. Tiryns, Mycenae and the Acropolis of Athens are familiar examples of analogous hill-cities which bring us down to a rather later date. In the eighth century Rome was founded on the Palatine hill—afterwards to expand and become the City of Seven Hills. Meanwhile in Central and Southern Europe the idea was spreading among the barbarians, and we have seen how an early form of fortification reached us with our Neolithic culture, only to die out again. Hill-cities, apparently modelled on Mediterranean types, but with walls constructed of earth and stones, bonded with timber, appear in Germany about 1000 B.C.¹ Our Hallstatt invaders had been familiar with such structures and with the state of society therein implied, before leaving their Continental homes, but in Sussex at any rate it was some time before the scattered groups of immigrants could attain the necessary degree of local organization, so that we do not find the great hill-forts appearing before the end

¹ For the early development of fortification in Europe see Ebert, *Reallexikon der Vorgeschichte*, vol. iii, s.v. 'Festung'; for Iron Age hill-forts in Britain see Hawkes in *Antiquity*, v (1931), pp. 60-97.

of our Phase I, while they were to become the dominant feature of Phase II.

About the middle of the third century B.C. an event occurred in central Sussex which was to have a profound effect on the history of this whole region. This was an incursion of people from the Marne district of northern France, who settled at Park Brow and Findon Park, north of Cissbury, bringing with them elements of the La Tène civilization.¹ The latter had its cultural centre in northern France in the Marne district, though it extended in the direction of Switzerland and covered the valleys of the upper and middle Seine and its other tributaries. The arrival of this culture in Sussex is marked in the pottery by the cessation of finger-tip decoration, the acquisition of a smoother, dark, 'soapy' finish, and, above all, the appearance of 'pedestal bases', that is, bases which instead of being flat are raised off the ground by a relatively tall ring or collar of added clay.

Professor Hawkes believes that it was the arrival of these invaders that provided the occasion for the building of the great hill-forts which we have now to consider.² Whether it was the natives who erected them as a defence against the invasion which they saw

¹ Dr. Kathleen Kenyon (*loc. cit.*) doubts whether the disturbances of this time were due to Marnians, and would defer the arrival of La Tène culture till after 100 B.C.

² The principal data upon which this discussion is based are as follows: *The Trundle*: excavations in 1928 and 1930 (S.A.C., lxx (1929), pp. 33-85; lxxii (1931), pp. 100-49); *Cissbury*: excavations by the Worthing Arch. Soc. in 1930 (*Ant. J.*, xi (1931), pp. 14-36); *Hollingbury*: excavations by the Brighton and Hove Arch. Soc. in 1931 (*Ant. J.*, xii (1932), pp. 1-16); *The Caburn*: excavations in 1877-8, 1925-6 and 1937-8 (*Arch.*, xlvi (1881), pp. 423-95; S.A.C., lxviii (1927), pp. 1-56; lxxix (1938), pp. 169-94; lxxx (1939), pp. 193-213); the Caburn pottery discussed by Professor Hawkes (S.A.C., lxxx (1939), pp. 217-62); *Castle Hill, Newhaven*: pottery collected by L. F. Field (S.A.C., lxxx, pp. 263-8), and discussed by Prof. Hawkes (*ibid.*, pp. 269-92); *Seaford Head hill-fort*: excavations in 1876 and later (J.R.A.I., vi (1877), pp. 287-99; S.A.C., xxxii (1881), pp. 176-8); *The Dyke*: observation of two pipe-trenches cut across the fort; *Park Brow*: excavations (*Ant. J.*, iv (1924), pp. 347-59; *Arch.*, lxxvi (1927), pp. 30-40); *Findon Park*: excavations in 1925-7 (*Ant. J.*, viii (1928), pp. 449-60).

coming, or whether it was the Marnian invaders who built them as tribal strongholds after settling in the country, is not yet clear, and arguments could be put forward in favour of either view. One thing seems clear: the great hill-forts to the west of the River Adur and as far as the River Itchen in Hampshire are uniform in their style of construction, while those to the east of the River Adur are not only different from these in style, but tend to differ from one another in certain details. The inference from this must be that the series of forts as a whole may not have been built by the same people; for while those to the west of the River Adur would seem to have been the work of one tribe or group of allied chiefs, those to the east of that river are sufficiently different from them to have been put up by another tribe or by small independent units. Most of them, especially those of the western group, are far too immense and elaborate to have been put up hastily in face of a threatened invasion; possibly the western group might have been constructed by the Marnians after their arrival as part of their politico-social system, while the less elaborate forts to the east—an area not immediately settled by the Marnians—may have been put up by the natives in imitation of the strongholds of the invaders. In this connexion it is to be noted that the hill-forts of the western group appear to have been permanently occupied, while of the eastern group none were occupied except the Caburn and Castle Hill (Newhaven); of these two the Caburn was not fortified till some time later (about 100 B.C.) while Castle Hill has unfortunately been totally destroyed, so that nothing of its history can now be recovered except what the pottery can tell.

It appears, therefore, that while the Marnians consolidated their position on the west Sussex Downs, they did not at first spread to the east of the River Adur. Here the 'Caburn I' people maintained themselves in isolation on their island site east of Lewes, and the absence of ramparts at this period shows that they were not afraid of being disturbed. Between the River Adur and Lewes, however, there is hardly any evidence of occupation between, say, about 250 and 100 B.C. and it is noteworthy that practically no pottery of Caburn I type has been found on Castle Hill (Newhaven), though

the Caburn and Castle Hill are situated no more than five miles apart.

So matters remained until a date provisionally put at about 100 B.C., when the people of west Sussex began to expand northwards across the Weald in search of iron, and eastwards along the Downs. The culture represented by this expansion, known as the Wealden culture, is traced mainly by vessels having sides with elongated S-profiles and degenerate pedestal-bases or 'foot-rings' (plate XXVII, 1), but also by roughly cylindrical 'saucepan-shaped' pots, sometimes decorated with shallow-tooled curvilinear designs of La Tène character (plate XXVI, 6-9). These Wealden folk exploited the iron-ores of the Weald across which they worked, until they eventually established themselves in the hill-fort of Oldbury, near Sevenoaks in Kent, by the early part of the first century A.D.¹ In Sussex they settled on Castle Hill (Newhaven) and may have constructed the hill-fort there (since destroyed). They also overcame the little settlement on Mount Caburn, and it is to this event that the first fortification of this hill is attributed; this is the little inner bank and ditch which may have been put up hastily by the defenders before the attack, because its construction lacks the normal timber-work which was used to brace ramparts made of chalk rubble. At any rate the peculiar pottery of the Caburn I people, developed in isolation from ultimate metal prototypes, gives place at this point to the characteristic vessels of the Wealden folk who, as the 'Caburn II' people, continued to occupy the site throughout our Phase III until the coming of the Romans.

East of the River Ouse the story of Phase II is still a blank for lack of evidence provided by excavated sites. Notwithstanding the opinions expressed in the original report² the settlement on Charleston Brow, near Firle Beacon, yielded no pottery earlier than Phase III, and none peculiar to the Wealden culture.

Following upon this sketch of the probable history of Sussex during Phase II we must consider the great hill-forts in rather more detail.

West of the River Adur we find a chain of large hill-forts

¹ *Arch.*, xc (1944), p. 153.

² *S.A.C.*, lxxiv (1933), p. 164.

stretching as far west as Winchester, and comprising (from east to west) Cissbury, the Trundle, and Torberry¹ in Sussex, and Old Winchester Hill² and St. Catherine's Hill³ in Hampshire. With the possible exception of Torberry, which has been completely levelled by ploughing, these hill-forts have the following features in common: defences consisting of a massive rampart and ditch, with a small counterscarp bank on the outer lip of the ditch; uniform cross-section of the defences at all points round the perimeter; the plan of the fort governed by the contours of the hill so that the ramparts conform thereto; in-turning of the ends of the ramparts at the entrances;⁴ and (with the exception of Old Winchester Hill, which has not yet been excavated) evidence of continued occupation during Phase II. The least constant feature is the area enclosed by the ramparts, and this varies from 6½ acres at Torberry to 12½ acres at the Trundle and 60 acres at Cissbury. There is also some relationship

¹ On Great Torberry Hill, 3 m. S.E. of Petersfield (41/779204); recently discovered by Mr. Horace Brightwell of South Harting, who, with Mr. A. R. Taylor, has recovered much of the plan of the ditch by extensive trenching. The ditch, averaging some 6 feet in depth, encloses an elongated area of about 6 or 7 acres stretching east and west; a transverse ditch divides this into two portions, of which the western, occupying the higher end of the hill, appears to have been the earlier, while the eastern was a somewhat later addition. The pottery found fairly plentifully in the excavations belongs mostly to Phase II, with a few shards of Phase I, and closely resembles that from the Trundle. The date of the earlier (western) fort remains uncertain, but the enlargement certainly belongs to Phase II. The whole area is now under the plough, and shards of Phase I pottery are fairly plentiful on the surface of the interior of the western part, but scarce in the eastern portion. No report has yet been published, but a selection of the pottery is stored in the Lewes Museum, as well as a bone weaving comb (fig. 82). The hill-fort has been at some time so thoroughly levelled that no easily recognizable traces can now be seen on the surface, but there appears to have been an entrance at the eastern end.

² J. P. Williams-Freeman, M.D., *Field Archaeology as Illustrated by Hampshire* (1915), pp. 270-1, 391. (41/640206).

³ C. F. C. Hawkes, J. N. L. Myres and C. G. Stevens, *St. Catherine's Hill, Winchester* (Hants Field Club, vol. xi, 1930). (41/484276).

⁴ Except at Cissbury, where later re-fortification of the entrances has removed this feature.

between the situation of the forts and the rivers which intersect the Downs from north to south, for with one exception each block of downland between adjacent rivers possesses one large hill-fort. Thus Cissbury lies between the Rivers Adur and Arun, the Trundle between the Arun and the Lavant, both Torberry and Old Winchester Hill lie in the wider block between the Lavant and the Meon, and finally St. Catherine's Hill lies between the Meon and the Itchen. This relationship at once suggests that each hill-fort may have served as the headquarters of a small tribal area which in most cases was bounded by the rivers mentioned. At the same time the uniformity of type and construction of these hill-forts suggests that all may have been erected by a single tribe or confederation of small tribal groups. In so far as evidence from excavation is available these hill-forts appear to have been occupied during more or less the same period, viz. approximately 250-50 B.C. Much more study of the pottery types of west Sussex is, however, needed before we can be more precise.

The hill-forts that lie to the east of the River Adur present a marked contrast to the western group in nearly every respect. Here we must except Castle Hill, because it no longer exists,¹ and the Caburn because we know that it belongs to a rather later date. The remainder comprise the Devil's Dyke and Hollingbury (both near Brighton), Ranscombe Camp beside the Caburn, and Seaford Head. Of these, Ranscombe appears to have been left unfinished, and could not in any case have been occupied in such close proximity to the Caburn while the latter flourished; the only evidence of occupation here must be secondary, viz. in the first and second centuries A.D., after the fall of the Caburn.² Digging in the other three hill-forts has yielded no evidence of continued occupation, and the little pottery found suggests that the forts may have been put up by the people of Phase I towards the end of that phase or at the beginning of Phase II. As to the defences of these four hill-forts none have ramparts quite as massive as those of west Sussex; none have

¹ The northern part of the hill-fort is marked on Yeakell and Gardner's map of Sussex (1783) and on Greenwood's map (1825), and seems to have extended for about a quarter of a mile east and west.

² *S.N.Q.*, v (1934), p. 124.

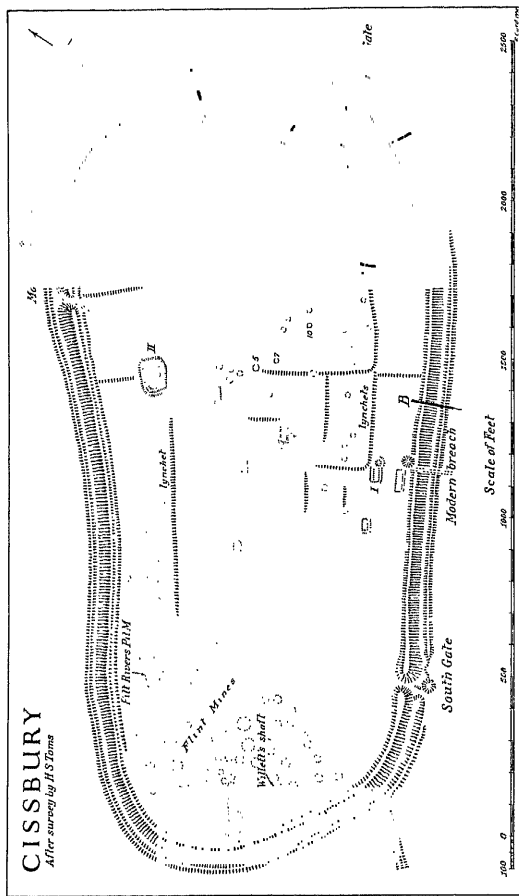


FIG. 74.—PLAN OF CISSBURY
Based on Surveys by the late H. S. Toms

counterscarp banks outside the ditch; only two have uniformity of cross-section of the defences (Hollingbury and the surviving part of Seaford Head), while two are promontory forts with stronger ramparts across the neck of the promontory and weaker defences round the steep sides (the Dyke and Ranscombe); and, finally, none have inturned ramparts at the entrances. These points of contrast between the hill-forts of east and west Sussex are extremely striking, and taken in conjunction with the pottery evidence go far to show that the River Adur was the frontier between two different political areas from the third century B.C. onwards.

Taking the great hill-forts as a class we next have to consider their structure and appearance, and also the part they must have played in the economy of the time. Their present ruinous condition gives very little idea as to their former strength, for however high and steep their grassy ramparts are to-day they can easily be scaled by an active man. In their original form, however, the walls were built of chalk rubble contained in a timber framework in such a way as to present a vertical face to an enemy, and a little distance in front of this there was a wide and deep trench which would present an almost insuperable obstacle to an assailant without scaling ladders. The structure of the timber work was best revealed at Hollingbury where two wide sections of the rampart were removed, revealing a double line of post-holes sunk into the undisturbed chalk beneath (plate XXIV, *left*, and fig. 77). Each hole in the inner row was strictly opposite its fellow in the front (or outer) row; the two rows were 7 feet apart and in each row the holes were spaced at about 7 feet, fairly regularly.¹ This arrangement contrasts with that at the Neolithic camp at Whitehawk, already described, where the palisade posts were set up in the rampart material, few of them penetrating to the undisturbed chalk below. At Hollingbury the arrangement recalls that which is found in German fortresses as early as the Hallstatt period, where it has been shown that the earth and stones forming the wall were held up in a vertical frame of timber—an arrangement

¹ *Ant. J.*, xii (1932), pp. 3-9; xiii (1933), pp. 162-3. The positions of the post-holes disclosed in the 1931 excavations at the eastern entrance and in the north rampart have been permanently marked by concrete posts.

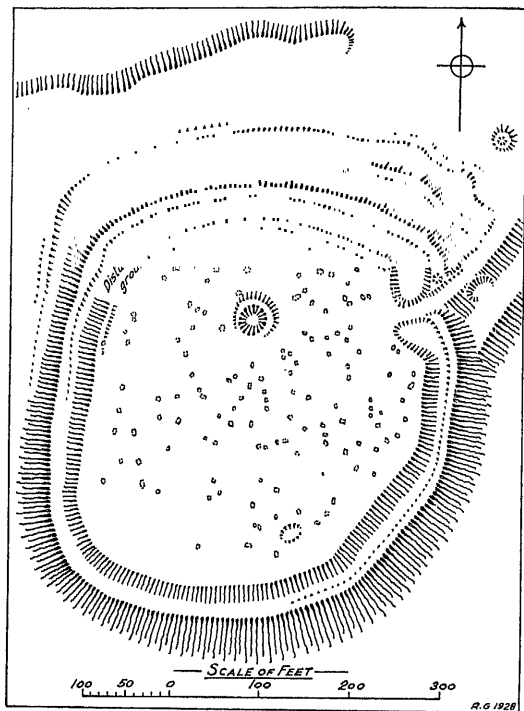


FIG. 75.—PLAN OF THE CABURN, SHOWING PITS IN THE INTERIOR

Survey by E.C.C. and G.L.C.

akin to the *murus Gallicus* which Caesar describes as obtaining in Gaul at a later date.¹ At Hollingbury it seems that the front row

¹ *Gallie War*, vii, 23. Reconstruction drawings of similar earth and timber ramparts at Nijmegen, Holland, are to be seen in De Waele's *Noviomagus Batavorum* (1931), plates 4-6.

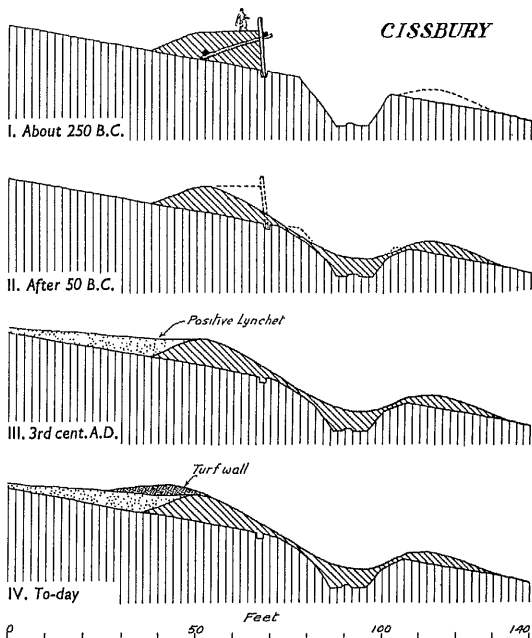


FIG. 76.—CISSBURY: SECTIONS OF RAMPART AT B ON GENERAL PLAN (FIG. 74)

I. Probable original construction with timber and chalk, about 250 B.C. (Form of counter-scarp bank uncertain.)

II. After 50 B.C. The form of the counter-scarp bank is uncertain. The rampart appears to-day as a low bank of chalk and turf. The form of the counter-scarp bank is uncertain. The rampart appears to-day as a low bank of chalk and turf.

of holes held posts about 5 or 6 inches thick, to which horizontal timbers were fastened to act as a revetment or facing to the rubble material of the rampart. Unless such a facing were in some way tied back, the weight of the rubble behind it would soon force it outwards, so that the inner row of holes must have held shorter posts to which the tops of the front row could be attached by means of tie-beams buried in the chalk rubble. The whole arrangement would thus closely resemble the wooden breakwaters which may still be seen on the foreshore of the Sussex coast to prevent the shingle of the

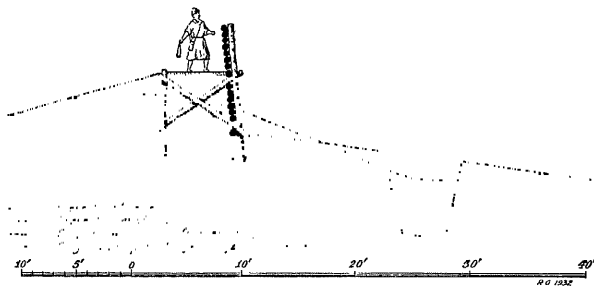


FIG. 77.—HOLLINGBURY—SECTION OF RAMPART GIVING A PROVISIONAL RECONSTRUCTION OF THE ORIGINAL TIMBERWORK IN CONTRAST TO ITS PRESENT PROFILE (SHOWN BY BROKEN LINE)

(*Antiquaries' Journal*)

beach being carried away by the eastward drift of the Channel currents; these consist of vertical pilcs with horizontal timbers, the whole being tied into the shingle-bank on the west side by means of oblique tree-trunks. The material of the rampart may have been backed by a sloping ramp, and a space would naturally intervene between the outer face of the wall and the ditch in front of it. Such an arrangement translated into earth and stone was to become a normal method of building town-walls in Roman times.

At Cissbury a different method seems to have been employed, and the difference may perhaps have cultural significance.¹ In this case

¹ *Ant. J.*, xi (1931), p. 22.

the timber revetment was set up in a continuous trench, and must therefore have consisted of vertical timbers set side by side in the trench and tied back into the rubble of the rampart in the same way as before (fig. 76—I). When one considers the vast size of Cissbury, the ramparts of which actually cover nearly 18 acres in addition to the 60 acres which they enclose, one is astonished at the magnitude of the task of its construction. As first designed the ramparts contained about 35,000 cubic yards of chalk which weigh about 60,000 tons, and all this had been raised from a ditch 11 feet deep. Then the revetment alone must have required from 8,000 to 12,000 straight timbers, from 6 to 9 inches in diameter and at least 15 feet long. How is it that we have not sooner had the curiosity to inquire as to who were these giants of old and when they lived?

Timber construction of this character has two main drawbacks: it is liable to be burnt by an attacking enemy, and, more serious still, it is subject to decay in the course of a very short life. The replacement of rotten timbers must have been extremely difficult, if not impossible; patchwork repair may have been attempted but sooner or later the decayed revetment is bound to give way under the pressure of soil behind it, and then down comes the whole of the front of the rampart into the ditch. The disintegrating effect of frost planes off all angles until we have the even slopes of the banks as we see them to-day (fig. 76—II).

The story of the Cissbury ramparts is represented in a series of diagrams drawn to scale in fig. 76. No. I shows the estimated original form and size of the chalk and timber wall and the ditch in front of it. The history of the small counterscarp bank has not been worked out, so that its form is not indicated here. No. II shows the result of the decay of the timbers with the prolapsc of much of the chalk into the ditch, together with the effects of frost. Nos. III and IV indicate modifications made at later periods, and as such do not concern us yet.

Timber-work was employed not only in the walls of these hill-forts, but also in the gates. The east entrance at Hollingbury showed on excavation no more than a pair of large holes which had held the posts of a single gate.¹ At the Trundle, however, the arrangements

¹ *Ibid.*, xii (1932), pp. 7-9.

were more elaborate and were altered twice during the occupation of the site (plate XXIV, *right*, and fig. 78). The story of the east gate here is as follows.¹

(1) The original scheme, which must coincide in date with the construction of the walls, was to have a double gate for ingress and egress, set up very nearly in a line with the present crest of the ramparts on either side (fig. 78—Stage I). The gates were hung on double posts which abutted on the ends of the walls, and they shut on to a single central post. A second central post-hole was found a few feet behind the first, evidently forming part of the same scheme, whatever its function may have been. In it was found nearly half of a bowl of a form referable to the beginning of Phase II, thus providing evidence for the date, not only of this first gateway, but also, by implication, of the ramparts. This coincides with the dating evidence obtained at St. Catherine's Hill (Hants), where traces of a very similar double gateway were found.

(2) The first arrangement was superseded after an unknown interval by a second plan of an entirely different nature (fig. 78—Stage II). The entrance-passage, which lies between the in-turned ends of the ramparts, was made narrower so as only to accommodate a single line of traffic, and two new single gates were set up, one behind the other, forming a barbican like those found in medieval castles. Between the two gates, and in advance of them, the side-walls of the entrance-passage were held up by a timber revetment supported by posts set up at intervals of 8 or 9 feet. Most of these posts, which were of oak, had had the surfaces of their butts charred by fire in order to retard decay, for in the filling of many of the holes we found flat flakes of oak-charcoal round the edges. In this stage the four gate-posts were each provided with a buttress-post to steady them and to help to support the heavy gates which must have closed on one another and have been secured by bars.

(3) The third stage must have been begun shortly before the abandonment of the site, and never completed (fig. 78—Stage III). A return was to be made to a double line of roadway and a double gate, but this time the latter was to be set right back at the inner end

¹ S.A.C., lxxii (1931), pp. 118-34.



PLATE XXIII.—CISBURY: AIR-PHOTOGRAPH SHOWING THE RAMPARTS OF THE IRON AGE HILL-FORT, THE SHAFTS OF THE NEOLITHIC FLINT-MINES, AND THE LYNCHETS RESULTING FROM CULTIVATION OF THE SITE DURING THE ROMAN PERIOD
(*Antiquaries Journal*)

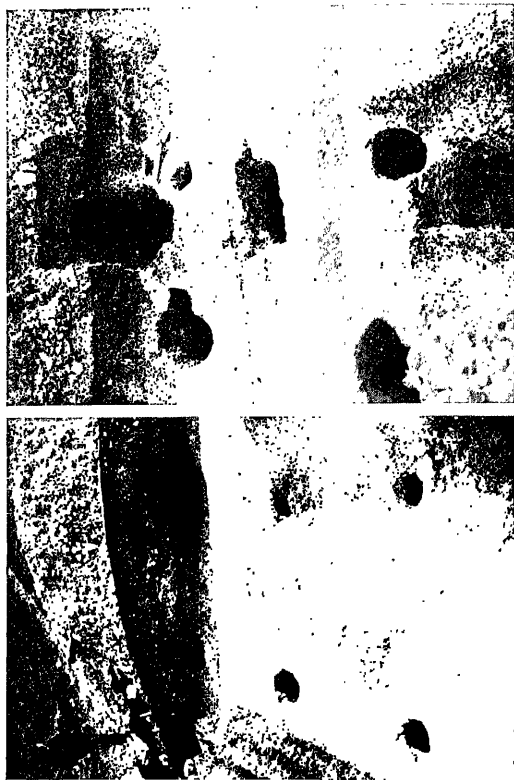


PLATE XXIV

Left: HOLLINGBURY—POST-HOLES OF PALISADE WHICH SUPPORTED THE EARTH AND TIMBER RAMPART

Right: THE TRUNDLE—GATE-POST-HOLES AT THE EAST GATE

The remains of Stages I and II are seen together (see fig. 78)

of the entrance-passage, and it was to have been of royal and magnificent proportions. The three pits which were dug to hold the gate-posts were 7 feet deep and 4 feet square, and each had a long

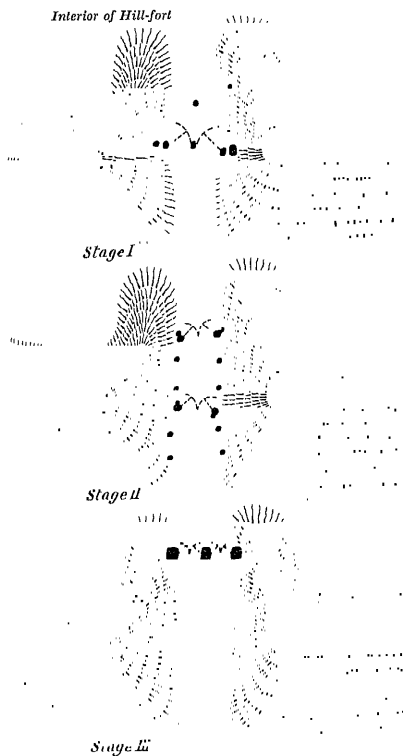


FIG. 78.—THE TRUNDLE: PLANS OF THE EAST GATE SHOWING THREE SUCCESSIVE STAGES IN THE TIMBER DEFENCES, AS INDICATED BY POST-HOLES

sloping ramp to facilitate the introduction of the enormous tree-trunks for which they must have been prepared. The stratification of the filling, however, makes it doubtful if these posts were ever erected, and pottery found in the bottom of one of them shows that they belong to the end of the period of occupation of the site. Moreover, the posts of stage II must have been dismantled before the new double roadway could be used.

On the walls of many of the holes could be seen the marks of the adzes used by the men who dug them, and the blade of one of these iron adzes was found near by. Under the rampart one could see very clearly the dark line of old turf where the grass was growing, say, about 250 B.C., and in one spot this was covered by a thin layer of chalk sludge which showed that on the day on which work was begun in constructing this part of the rampart the weather was wet, so that the builders trampled the sticky wet chalk about over the grass.

So much for the walls and gates of these defended sites. What of the interior spaces? In the case of those which were permanently occupied the keen eye may detect here and there a number of shallow depressions in the grass. These are most in evidence at the Caburn where about one hundred and forty of them have been excavated (fig. 75), and they mark the sites of small granary pits from 3 to 8 feet in depth, and with a similar diameter—round or oblong—like the pits already mentioned at Park Brow and Findon Park. As we find them they are filled up with earth, loose chalk and ashes, containing broken pottery and miscellaneous domestic refuse, from which deductions can be made as to the life of the inhabitants. Of the houses nothing has survived except occasional fragments of clay bearing the impression of wattles. They can only have been made of timber and wattles daubed with clay, and search might disclose the holes in which the main uprights had been placed, but so far this has not been undertaken.

What then was the purpose of these hill-forts? Were they fortified farms, the castles of chieftains, market towns, or tribal strongholds into which cattle could be driven for safety when danger threatened? Until the entire surface of the interior of at least one of

these hill-forts has been stripped and examined for post-holes and other features it will not be possible to give a final and definite answer to this question. Only in such a way could an estimate of their economy be obtained, but in the meantime it may be noted that the functions suggested above are not of necessity mutually exclusive. The Trundle, Cissbury and the Caburn are the only forts to consider in this connexion, as the remainder were abandoned after construction, except Castle Hill, for which we have no evidence. The Trundle could scarcely have been a fortified farm as it is surrounded

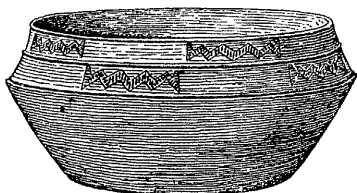


FIG. 79.—RECONSTRUCTION OF CORDONED HAEMATITED BOWL FROM THE CABURN (CABURN I) (LM.) ($\frac{1}{4}$)

The base and the lengths of the individual panels of decoration are conjectural. Decoration incised after firing and inlaid with white pigment

by virgin downland that has obviously never been ploughed. Cissbury, likewise, could not have been a private farm on account of its enormous size and the vast amount of labour entailed in its construction—features which must indicate that it served the common interests of a considerable group. Cissbury, it is true, is surrounded by lynchets of the Celtic field-system, but it is known that the interior of the fort was under the plough during the Roman period and it is practically certain that the lynchets outside belong also to the same period, that is, after the abandonment of the hill-fort as such. Then again, the uniformity of the character of the hill-forts of west Sussex and eastern Hampshire argues that each must have performed the same general functions as the others of the series. It seems improbable, therefore, that this series of hill-forts, at any rate,

were merely fortified farms; if, therefore, the occupants did not practise agriculture they must have obtained their food-supply either by way of tribute, as a chieftain might in his castle, or in

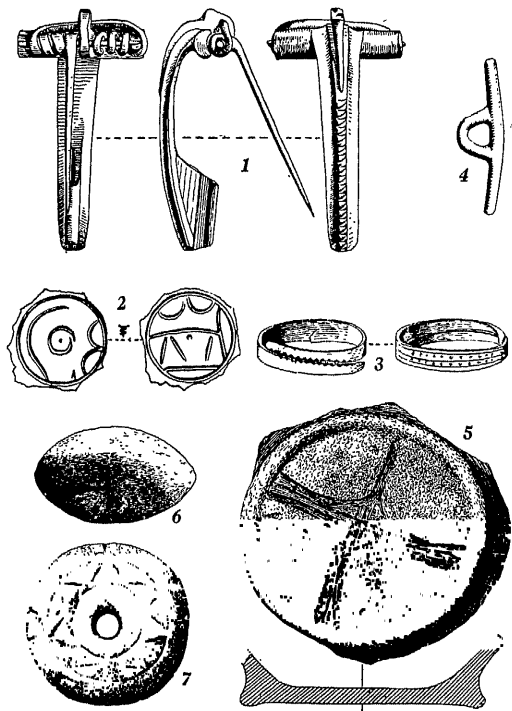


FIG. 80.—OBJECTS FOUND IN THE CABURN (L.M.)

1, Bronze brooch, early first century A.D. (1); 2, British coin (tin and copper) (1); 3, Bronze finger-ring (1); 4, Bronze toggle (1); 5, Base of pot ornamented with cross (1); 6, Clay sling-bullet (1); 7, Spindle-whorl (1)

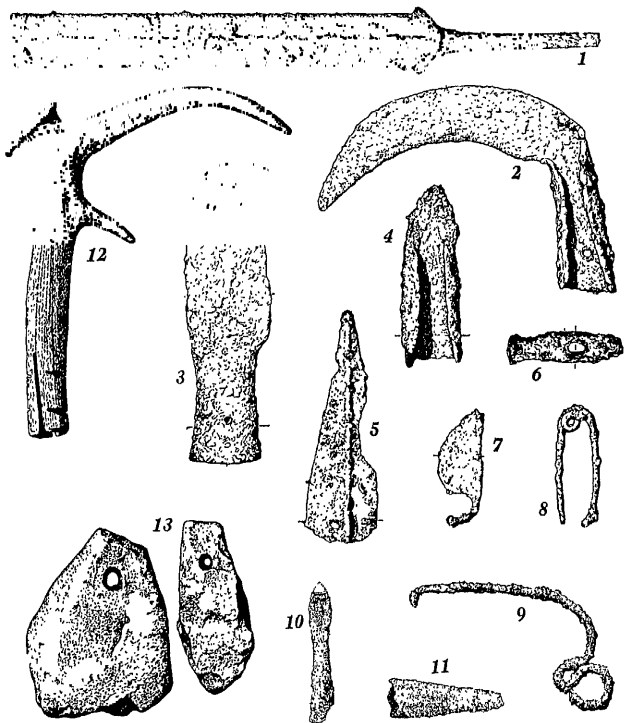


FIG. 81.—OBJECTS FOUND IN THE HILL-FORTS (I.M.)

return for manufactured goods, as in a market town. What may have been true of the western series of forts need not have been true of the Caburn, and *vice versa*, but at the Caburn there was evidence of the manufacture of iron objects (fig. 81), the casting of bronze, and the fashioning of deers' antlers into handles for knives and other implements (fig. 81, 12). The Caburn, however, was originally an open settlement, and was only fortified on the threat of invasion by the Wealden people about 100 B.C., and again on the eve of the Roman conquest in A.D. 43, so that the case of the Caburn may not be strictly comparable with that of the western group of hill-forts. One thing seems fairly certain with regard to the latter, and that is that the comparatively large area enclosed by the ramparts—as much as 60 acres in the case of Cissbury—was intended to provide room for the inhabitants of the surrounding farms with their flocks and herds when they took refuge there in times of danger. What other functions these strongholds may have served in addition to that of occasional refuges, as suggested by the evidence of continued occupation, can only be decided after much more excavation of the actual hut-sites.¹ The Caburn, on the other hand, enclosed only $3\frac{1}{2}$ acres, and this area is fairly evenly covered with granary-pits—140 in all (fig. 75)—so that very little space can have been reserved for refugees from the surrounding country. Faint traces of lynchets are visible close to the Caburn, so that this settlement may have been a self-supporting farm.

In this connexion a word must be said as to water-supply.² The question is constantly being asked: how did the inhabitants of these hill-fortresses get their water? The answer lies in a consideration of three points:

(1) These fortresses cannot have been able to withstand a long siege, nor is it likely that in that state of society long sieges were resorted to. It is rather raids that were provided against.

¹ Maiden Castle and Hambledon Hill in Dorset seem to have been of the nature of walled towns. For the former see Sir R. E. M. Wheeler, *Maiden Castle, Dorset* (Soc. of Antiquaries, 1943), p. 68.

² For a fuller discussion of this question see *S.C.M.*, v (1931), pp. 212–16; also *S.N.Q.*, xiii (1950), p. 89.

(2) By this time the climate was wet, with the prevailing wind in the south-west, and there is some evidence that the water-table stood higher in the chalk, so that springs would have broken out in valleys that now are dry. The choice of a hill for fortification was no doubt partly determined by the proximity of a suitable spring, down to which the women would wend their way, carrying water-pots. The city of Ramah affords a parallel in the Old Testament: 'As they went up the ascent to the city, they found young maidens going out to draw water.'¹

(3) Within the defences steps were no doubt taken to collect surface water. At the Caburn a deep shaft, which was explored by Pitt Rivers, may have been intended for this purpose. We are not bound to suppose that the inhabitants washed themselves very often, if at all, so that the demand for water need not have been very great. Moreover, contrary to popular belief, there is no evidence that the principle of the dew-pond, which is a familiar feature of the Downs to-day, was known before the eighteenth century; many, if not all, of our examples, including those at Chanctonbury Ring and Cissbury, were made during the nineteenth century.

Something of the life of the occupants of the hill-forts can be learnt from the objects which they threw away or lost while they lived there. Nothing will be known as to the size and shape of the huts until the sites of some of them have been excavated, and their plans and elevations reconstructed from a study of the holes that held the upright posts. Sometimes the doors of the huts had latches which were manipulated by means of a characteristic iron latch-lifter (fig. 81, 9).

While peace was the normal condition,² the possibility of war is shown by the very existence of formidable defences, and the situation of the forts on bleak and waterless hill-tops, for which there is no reason except fear of an enemy. At the same time, the way in which the defences were allowed to fall into decay, and only re-organized at comparatively long intervals, suggests that such war as there was may have been occasioned by the arrival of fresh contingents of immigrants from abroad in search of land, and not by

¹ 1 Sam. ix, 11.

² *St. Catherine's Hill*, pp. 63-4.

frequent predatory raids by neighbouring tribes. The ramparts were manned by slingers whose ammunition consisted of selected beach-pebbles, about the size and shape of pigeon's eggs; hundreds of these sling-stones were found, sometimes kept in store-pits. Clay sling-bullets, though common in south-west Britain and mentioned by Caesar as being used by the Gauls,¹ are very rare in Sussex (fig. 80, 6). The sling seems to have taken the place of the bow during the Iron Age, and the few arrow-heads now found are made from sharpened bones and were attached to the shaft by means of a peg or rivet. Even these may have been lance-heads rather than arrow-heads, and they may have been reserved for hunting. Lance-heads of iron are also found, and sometimes the butt-end of a lance was fitted with an iron ferrule (fig. 81, 10, 11). At the Caburn an iron sword and dagger complete the catalogue of war-like equipment (fig. 81, 1, 5); the sword has the ogival hilt-guard of the earlier (La Tène I-II) type of weapon and not the straight guard introduced into Kent by the Belgae in our Phase III.

Other iron objects found at the Caburn include a fine sickle and bill-hook, a small ploughshare and the head of a small hammer (fig. 81, 2, 3, 4, 6). Though no iron saws have survived, the marks of their use are found on pieces of antler and bone. A neat little iron razor has a convex cutting edge and a curved tang ending in a small knob; holding the tang between thumb and forefinger and using a sweeping movement of the wrist, one can make the convex cutting edge traverse the cheek with a shearing action which no doubt mitigated the discomfort of using a razor made by the local blacksmith out of soft iron (fig. 81, 7). For fastening clothing iron safety-pins (fig. 81, 8) and bronze brooches with coiled springs (fig. 80, 1) were used, as well as bone and bronze toggles (fig. 80, 4). Articles of personal adornment include a blue glass bead and a bronze finger-ring of conveniently adjustable size (fig. 80, 3).

At the Caburn the Wealden folk who captured the place about 100 B.C. possessed a few 'tin' coins—the earliest native coins in Britain. They are made of an alloy of one part of tin to three parts of copper, and they have been cast in wooden moulds. The designs

¹ *Gallic War*, v, 43



PLATE XXV.—IRON AGE POTTERY (ALL $\frac{1}{4}$)

1, Hallstatt, painted with concentric lozenges, black on red, distorted in firing, Eastbourne (L.M.); 2, Hallstatt, haematited, Eastbourne (L.M.); 3, Hallstatt, haematited, with thirteen holes drilled in base and a larger hole in the side, Lancing Down (B.M.); 4, Hallstatt covered bowl, Park Brow (B.M.); 5, Jar with finger-nail ornament on lip, Park Brow (B.M.); 6, Hallstatt pink 'flower-pot' type, with two holes in side, Eastbourne (L.M.)

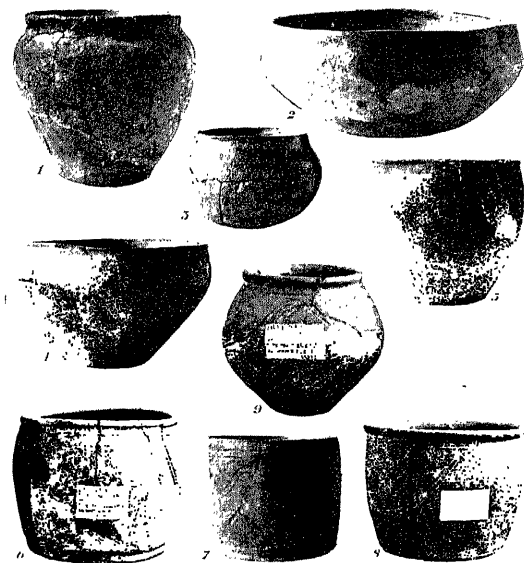


PLATE XXVI.—IRON AGE POTTERY (ALL $\frac{1}{6}$)

1, Park Brow (B.M.); 2, The Trundle, from post-hole of first stage of East Gate defences (L.M.); 3-5, The Trundle (L.M.); 6, 9, Cissbury (B'ton M.); 7, The Trundle (L.M.); 8 Elm Grove, Brighton (B'ton M.)



PLATE XXVIII.—IRON AGE POTTERY—INCLUDING IMITATED BELGIC AND
GALLO-BELGIC TYPES (ALL $\frac{1}{6}$)

1, 2, East Sussex; 3-6, West Sussex

1, 'Caburn I' cordoned jar, t Eastbourne (L.M.); 2, 'Shepherd's Garden', Arundel
Belgic *terra nigra* plate, 'Sheph
6, Black Gallo-Belgic beaker, Hardham posting-station (L.M.)

are extremely crude, consisting of what passes for a human head in profile on the obverse, while on the reverse are lines which are a degenerate representation of a charging bull (fig. 80, 2). These are barbaric copies of coins which circulated in central Gaul during the second century B.C., and which were themselves copies of bronze coins of Massilia, representing the head of Apollo and a charging bull. The barbaric British copies are dated approximately 100-60 B.C., and are found scattered over south-east England, with the greatest concentration in Kent and round London.¹ As a currency they are the counterpart of the iron currency-bars of south-west Britain which were made to a certain standard of weight, namely, the Celtic 'pound' of 4,770 grains.

A lead weight was also found at the Caburn, weighing very nearly

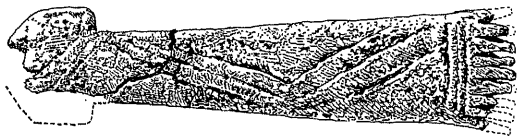


FIG. 82.—BONE WEAVING-COMB, TORBERRY (½)

the sixteenth part of this Celtic 'pound', and therefore probably representing an 'ounce'. While the Roman pound was divided into 12 ounces, there is reason to believe that the Celtic unit was divided into 16, by the more primitive method of repeated bisection.²

Wool was spun on spindles weighted with whorls of baked clay or stone (fig. 80, 7), and woven on upright looms on which chalk weights were employed to keep the warp threads taut (fig. 81, 13), while a comb was used for pressing home the woof (fig. 82). It is also likely that pottery may have been made on the spot at the Caburn, though our only evidence for this consists of a 'waster' which had lost its shape before being fired, and a few lumps of unused clay. Pot-making was still a home craft, like baking a cake, and clay vessels were made by the housewife when required—shaped

¹ Derek Allen in *Trans. Internat. Numism. Congress*, 1936, p. 351.

² *S.A.C.*, lxviii (1927), p. 16.

without using a wheel, and baked among the ashes of the hearth, just as they were in parts of the Hebrides down to the end of last century.¹

The revolving hand-mill, or rotary quern, for grinding corn first appears during this phase, about 100 B.C., having been introduced from the Continent with the La Tène civilization.² The earliest rotary quern had a thick, conical lower stone, of small diameter, with the grinding surface sloping rather steeply downwards and outwards. A socket in the centre held the wooden spindle which supported the upper stone. This latter was equally thick and heavy, and was turned by a wooden handle which lay in a groove on the upper surface and projected outwards.

The occupants of the hill-forts kept horses, dogs, cattle, sheep and pigs, and they hunted red deer and boars in the forests of the Weald. Besides the bones of these animals, dogs' droppings were found in seven pits at the Caburn; these were preserved as a result of their high content of calcium salts due to a diet of gnawed bones. Heated stones were used in cooking, and perhaps also in drying or roasting the corn to prevent germination while stored in the granary pits; drying is also essential before grinding.

Farm life continued to flourish, though little is known of it in this phase, except at Park Brow and Findon Park, near Cissbury. The arrival of the Marnians about 250 B.C. was marked at the former site by the transference of the settlement from the crown of the hill to a new position nearer its foot (fig. 73—c).

A curious group of hut-sites, or perhaps working shelters, was discovered by Mr. H. Brightwell on the steep north face of Harting Hill, four miles south-east of Petersfield.³ Two of these platforms, which were terraced in a most unusual situation on the steep north escarpment, were excavated by Miss P. A. M. Keef, who found hearths and pottery referable to the early part of Phase II. One of the hut-platforms disclosed three deep post-holes which the excavator considered to be likely to have held the uprights of a vertical loom, though no weaving combs or loom-weights were found.

¹ *Antiquity*, xii (1938), pp. 280–2.

² *Ibid.*, xi (1937), p. 133; xv (1941), p. 15.

³ *S.A.C.*, lxxxix (1950), p. 179 (41/792185).

Before passing on to the next phase of our story, we have to notice the discoveries of six foreign coins, all of which are datable within the limits of this phase (fig. 83). (1) A Carthaginian bronze coin of about 200 B.C. was found just outside the northern ramparts of the Caburn.¹ (2) and (3) Two Egyptian coins of Ptolemy VIII (170-117 B.C.)—one silver and one bronze—were found at Kingston

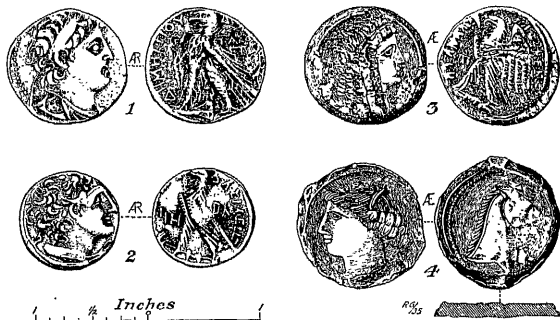


FIG. 83.—FOREIGN COINS OF THE SECOND AND THIRD CENTURIES B.C.
FOUND IN SUSSEX ($\frac{3}{4}$)

1, Demetrius II of Syria, from Yapton (Littlehampton M.); 2, 3, Ptolemy VIII of Egypt, from Kingston Buci (2, Mr. Kenneth Loader; 3, lost); 4, Carthaginian, from the Caburn (L.M.)

Buci at different times and by different people.² (4) A silver tetradrachm of Demetrius II of Syria (146-138 B.C.) was found in Sparks's brickyard, Yapton, and is now in the Museum at Littlehampton. (5) A bronze coin of Hieron II of Syracuse (275-216 B.C.), was found at Westbourne, near the Hampshire boundary.³ (6) A bronze coin from Cnidos, belonging to the second century B.C., was found at Selsey.⁴ Such coins are not infrequently found in

¹ S.A.C., lxviii (1927), pp. 57-9.

² One (silver) in possession of Mr. Kenneth Loader; the other now lost, but illustrated in the *Brighton and Hove Herald*, April 21, 1934, from which our drawing is copied by kind permission of the Editor. Both coins briefly reported in S.N.Q., v (1934-5), pp. 92-3.

³ S.A.C., xlviii (1905), pp. 151-2.

⁴ *Ant. J.*, xiv, p. 41.

south-east Britain, and may have found their way here in Roman or modern times. At the same time it is curious that so many should fall within the second and third centuries B.C., and it is at least probable that they came over in the course of trade during the Iron Age.¹ The presence of one at the Caburn supports this view. Native British coins had not yet made their appearance in Phase II.

PHASE III (50 B.C. or a little later—A.D. 43)

The third division of the Iron Age in Sussex owes its distinctive features to the arrival of peoples who had been displaced from Northern Gaul by the campaigns of Julius Caesar. These include some of the Belgae and those others who, for want of a better name, are known as the 'South-eastern B' folk. The Belgae were a people of mixed Celtic and German origin who occupied that part of Gaul which lies between the Seine, the Marne and the lower Rhine.²

The first, or eastern, invasion of the Belgae had taken place about 75 B.C. and had affected Kent, whence the invaders spread later to Hertfordshire and Essex. From them arose several kings whose names have been recorded either by Roman writers or on their own coins; among these are Cassivellaunus, against whom Caesar fought in 55-54 B.C., and Cunobelin, the powerful overlord of south-east Britain from A.D. 5 to 40—the Cymbeline of Shakespeare. This invasion was distinguished by its characteristic pottery, technically known as the 'pedestal urn', the absence of which in Sussex shows that this invasion did not directly affect us, at least in its earlier stages.

The second, or western, invasion began about 50 B.C. and affected principally Hampshire, Wiltshire and Berkshire. It seems to have been led in part by a man named Commius, who was king of the Belgic tribe of the Atrebates, of which the capital was at Arras in northern France. This man was at first an ally of Caesar in his Gallic wars, but later proved treacherous, and to escape the conse-

¹ See *St. Catherine's Hill*, p. 186.

² See C. F. C. Hawkes and G. C. Dunning, 'The Belgae of Gaul and Britain', *Arch. J.*, lxxxvii (1930), pp. 150-335.



PLATE XXIX

Above: GOLD COINS OF BELGIC KINGS, FROM SUSSEX

1, Commius, from Brighton; 2-5, Tincommius, from Selsey; 6-8, Verica, from Selsey.
(All B.M.) (1)

Below: SILVER COIN OF EPATICCUS FROM THE DYKE (9)

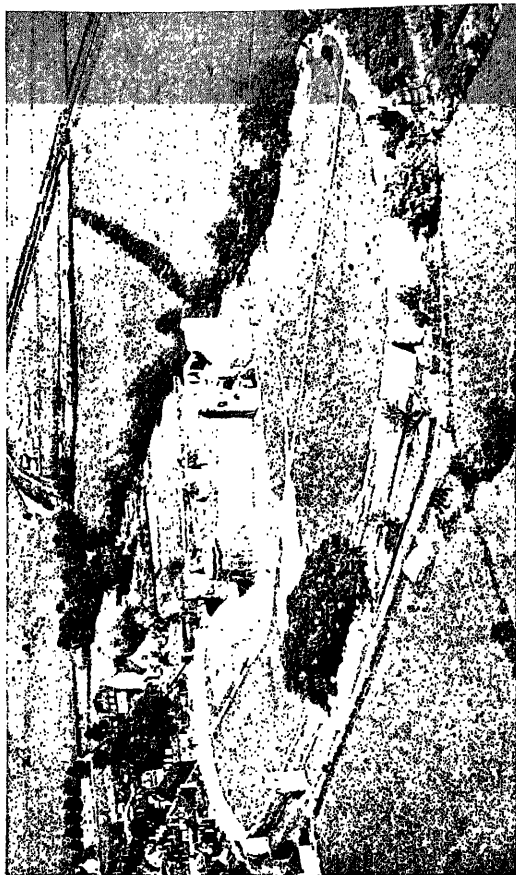


PLATE XXX.—ANDERIDA (PEVENSEY) FROM THE AIR

The Roman walls with their bastions enclose a large oval area in the far corner of which stands the Norman Castle

quences fled to Britain with a large part of his tribe. These settled in Wessex, and founded the city of Calleva Atrebatum (Silchester) on the borders of Hampshire and Berkshire—a city which later became Romanized.

The Belgae seem to have had a faculty for organizing and governing, for wherever they went they established a suzerainty over the natives and organized their small tribal units into larger kingdoms. One of the effects of this change was that the hill-forts ceased to be needed for purposes of defence, and as their bleak and waterless situations were not suited to market-towns they were very largely abandoned at this time, except on the outskirts of Belgic areas. It is no doubt for this reason that we find our western hill-forts—Torberry, the Trundle and Cissbury—deserted about the middle of the first century B.C., before Belgic influence had begun to be felt on the pottery. There is some reason to think that a Belgic city may have been founded on the coastal plain in the Chichester or Selsey district, and that this may have taken the place of the Trundle and Cissbury as a market-town. The Belgae were the first to introduce cities in lowland situations, and one might reasonably expect them to have been the founders of Chichester, which in Roman times was called *Regnum* and *Noviomagus*. The latter name is Celtic, and freely translated signifies the 'new city on the plain'. This looks like a pointed contrast with the Trundle, the old city on the hill, but as Chichester was not founded until after the Roman conquest in A.D. 43, it is possible that the name *Noviomagus* may have been transferred to it from an earlier Belgic city in the neighbourhood.

An alternative site may have existed in the neighbourhood of Selsey, where much material of all periods has been found. Besides strongly Belgicized pottery, hundreds of British coins, mostly of gold, have from time to time been found on the fore-shore of Selsey Bill, together with miscellaneous fragments of gold, suggesting the possible site of a mint.¹ The use of coins had been adopted by the Belgae who had copied the idea from the Romans, the gold

¹ See many references in the *S.A.C.*, especially xxix (1879), pp. 72-113; xxx (1880), pp. 1-30. For recent authoritative summaries of the coin-evidence in Britain see *Antiquity*, vii (1933), pp. 268-89 and *Arch.*, xc (1944), p. 1.

stater of Philip of Macedon, which was in circulation in Rome in the second century B.C., being the prototype. Commius struck coins with his own name on them, and he was apparently succeeded by his three sons, Verica, Tincommius and Eppillus, who all issued coins on which each described himself as 'son of Commius'. To judge from the distribution of their coins Eppillus must have obtained the throne of Kent, which in the time of Caesar had been divided between four petty chieftains. The historic tribe of the Regni, which, as we shall see, occupied West Sussex, would seem to have been ruled by both the other brothers, the great majority of their coins being found in the Selsey district ¹ (plate XXIX). No doubt one brother succeeded the other, but in any case they presumably ruled from a capital city of some kind, and the concentration of coins at Selsey draws attention to that neighbourhood. Coast erosion might have prompted the moving of the capital to Chichester when the Romans came, in which case our supposed Belgic city will already have gone the way of the Saxon Cathedral of Selsey, and been swallowed up by the hungry sea. The Chichester Dykes, many miles of which protect Chichester and the Selsey peninsula from the north, may very likely belong to this period, but their date has not yet been ascertained ² (see chapter XI).

It seems very possible that Verica may have deposed his brother Tincommius from the throne of the Regni, and that Eppillus similarly ousted Dubnovellaunus, king of Kent, for it is recorded on the Ancyra monument that Tincommius and Dubnovellaunus travelled to Rome to seek the protection of Augustus, hoping, no doubt, to recover their kingdoms with Roman aid.³

The western Belgic dynasty of Commius came to an end with the death of his sons, and the overlordship passed to the eastern Belgic king Cunobelin, whose capital was at Colchester. Under him the whole of south-east Britain was united, with the possible exception

¹ By 1879 there had been found at Selsey ninety-six coins of Tincommius and twenty-eight of Verica (*S.A.C.*, xxix, pp. 86-8).

² *S.A.C.*, lxxv (1934), pp. 65-106.

³ T. Rice Holmes, *Ancient Britain and the Invasion of Julius Caesar* (1907), pp. 366-7.

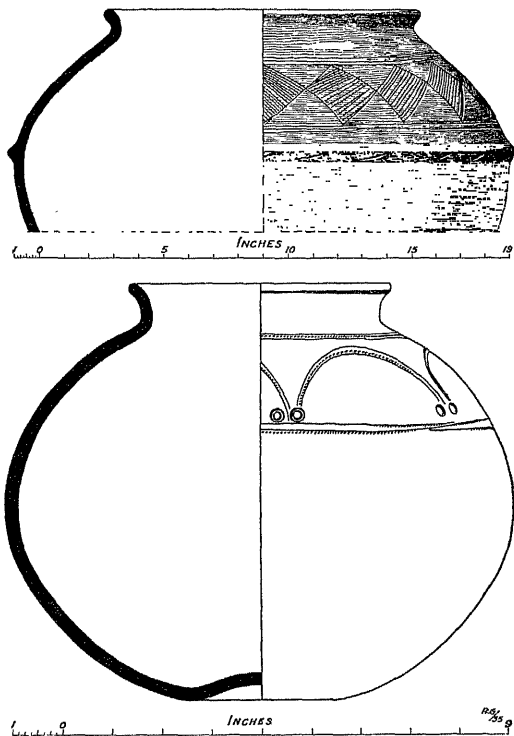


FIG. 84

1, LARGE STORE-JAR OF SOUTH-EASTERN B DESCENT, WITH RAISED AND SLASHED GIRTH-BAND, BROADWATER (W.M.) ($\frac{1}{8}$)

2, TYPICAL SOUTH-EASTERN B VESSEL WITH 'EYEBROW' DECORATION AND OMPHALOS BASE, SALTDEAN, NEAR BRIGHTON (B'TON M.) ($\frac{1}{8}$)

of East Sussex which may have been thought too poor to trouble about. From the coin-evidence it seems possible that the Regni may have been given to Cunobelin's brother Epaticcus, but at the time of the Roman conquest in A.D. 43, three years after the death of Cunobelin, we find a king Cogidubnus ruling at Chichester.

Let us now turn back from the coins to the evidence of earthworks and pottery. We have seen that the great hill-forts west of the Adur were deserted about the time of the coming of the Belgae, and that this suggests that the tribal groups they represented may have been absorbed into a western Belgic kingdom under Tincommius and

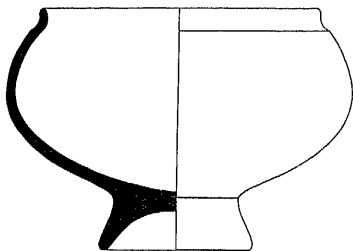


FIG. 85.—IMITATION BELGIC PEDESTAL BOWL, LANCING DOWN
(cf. PLATE XXVIII, 3) (B'TON M.) ($\frac{1}{3}$)

Verica. East of the Adur things were different, for the Caburn, instead of being abandoned, continued to flourish for at least another century until the coming of the Romans.

In cast Sussex the evidence of the pottery shows that while the neighbouring Belgic tribes exerted a slight influence on the development of fashions, the dominating factor was the arrival of a new wave of La Tène, or 'B', peoples who settled in east Sussex and may have been responsible for keeping the Belgae out of that area. These immigrants, distinguished as the 'South-eastern B' people for lack of a better name, appear to have come from some part of Brittany, whence they may have been displaced by the campaigns of Julius Caesar in 56 B.C. when he almost annihilated the sea-faring Veneti

of the Morbihan district of southern Brittany. The South-eastern B pottery is characterized by a wide-bellied vessel with a relatively narrow neck and a counter-sunk 'omphalos' base,¹ decorated on the shoulder by an arcading of 'eyebrow' decoration and impressed circlets (fig. 84, 2).² The people who introduced this pottery settled in east Sussex mostly between the Rivers Adur and Cuckmere, but also as far east as Seddlescombe near Hastings, and spread northwards across the Weald into western Kent and Essex. At the Freshfield brickworks, one and a half miles south of Horsted Keynes³ on the southern slopes of the Ashdown Forest ridge, the site of what must have been a manufactory of this pottery has been found, with the remains of a large quantity of broken vessels from which it is possible to study the range of types. The occurrence of foot-rings in some of the vessels, both here and elsewhere, is regarded by Professor Hawkes as an indication of some fusion having taken place with the preceding Wealden culture. In a few cases 'eyebrow' decoration was emphasized with black paint, a feature which has also been found at Seddlescombe.⁴

Besides the South-eastern B pottery a very curious feature appears at the same time and is distributed over the same area in east Sussex, viz. between the Rivers Adur and Cuckmere. This is a tendency to revert to the Late Bronze Age way of decorating some vessels with applied bands of clay bearing finger-tip impressions or oblique criss-cross slashes (plate XXVII, 4). The origin of this atavistic device is obscure, for, though it is sometimes applied to otherwise characteristic South-eastern B vessels and is closely associated with that culture, it is not an original feature of it and is apparently not often found in the extension of that culture into Kent and Essex. While the 'omphalos' bowls probably begin during the first century B.C. and continue with more or less modification until after the Roman Conquest, the applied band technique belongs to the first century

¹ Something like the pushed-in base or 'kick' of a modern wine-bottle.

² For South-eastern B pottery see J. B. Ward Perkins, *P.P.S.*, iv, p. 151; and C. F. C. Hawkes, *S.A.C.*, lxxx (1939), pp. 252-8.

³ *S.A.C.*, lxxviii (1937), p. 253.

⁴ *S.N.Q.*, xi (1947), p. 148.

A.D. only, and appears to have flourished both before and after the Roman Conquest.

On their arrival in east Sussex the South-eastern B people found Castle Hill (Newhaven) and the Caburn occupied by the people of the Wealden culture who had come in during Phase II, as we have seen, while most of the surrounding country was empty and ready for settlement. Some of their pottery found its way into Castle Hill along with some of the 'applied band' ware, but there seems no ground for supposing that the immigrants captured the hill-fort. Situated as it was near the mouth of the River Ouse—though not so near as it is to-day, owing to coast erosion and other changes—Castle Hill was well placed to receive imports from the Continent, and accordingly we find that during the few years immediately before and after the Roman Conquest in A.D. 43 the inhabitants acquired a certain amount of fine wheel-turned platters and other vessels of Gallo-Belgic origin imported from northern France.

As for the Caburn, very little South-eastern B pottery or its associated 'applied band' ware found its way into that isolated stronghold, the inhabitants of which maintained themselves in complete independence until the Roman Conquest. The pottery retained its 'Wealden' characteristics to the end, but one decorative motif deserves special notice. This is the device of marking the underside of the bases of some vessels with a form of cross, more or less perfunctorily scored with the end of a stick or bone. Most commonly this consists of a pair of scratched lines crossing one another roughly at right angles, or occasionally it takes the form of four arcs of circles placed so that the convexity of each faces the other three, thus leaving a cruciform space between the four. Sometimes both forms are combined in a rather more carefully executed design (fig. 80, 5). The origin of this kind of decoration is obscure; elsewhere it has most frequently been found on the South-western B pottery of the Glastonbury lake-village in Somerset. This motif may have originated from some structural feature such as cruciform metal struts inserted into the base of a bronze vessel in order to give it greater strength, yet, even so, its perpetuation as a device applied to a clay vessel in a position in which it is not normally visible suggests a

ritual or superstitious motive. The 'wheel-cross', or cross within a circle, is a well-known pre-Christian symbol, and to make the sign of the cross to keep away evil influences was not a primitive Christian practice, but is likely to have been borrowed from paganism. These pottery vessels may have been so marked in order, for instance, to keep the milk which they contained from turning sour.

Throughout Sussex agriculture was stimulated during Phase III and new farms sprang up. The old hill-fort of Cissbury was given over to the plough, and the lynchets now visible within it date from this and the Roman period (figs. 74 and 76—III). The Findon Park site was deserted, probably for a more favourable site near by, and the Park Brow people had already moved farther down their hill. Kingston Buci continued to flourish as before; and new farms sprang up on Charleston Brow (near Firle Beacon)¹ and at the 'Shepherd's Garden' in Arundel Park.² In the Brighton area, between the Adur and the Ouse, a district which we have noted as appearing to have been left uninhabited during Phase II, several new farms sprang up, among which we may specially note examples on Thundersbarrow Hill (overlying the old fort), outside the hill-fort at the Dyke (associated with coins of Epaticcus and Claudius), and on Buckland Bank, north of Falmer. With the exception of the Dyke all these sites continued to flourish during the Roman period. Though most of the farm at the Dyke lies to the west of the hill-fort, at least one hut stood within the fort. This was a round hut, some 25 feet in diameter, and its walls had been set up in a bedding-trench which had been dug in the top-soil without penetrating into the solid chalk. By rare good fortune this trench could still be traced in the turf, and within its limits were two small store-pits which yielded a little pottery indicating a date in Phase III.³

Exploration of the Weald continued, as we have seen; the objective was evidently the rich iron deposits of the forest ridge which

¹ S.A.C., lxxiv (1933), p. 164.

² *Ibid.*, lxxvii (1936), p. 223.

³ Excavations in 1935 by Messrs. G. P. Burstow and G. A. Holleyman and Dr. A. E. Wilson; S.A.C., lxxvii (1936), p. 195.

later formed one of the main sources of the supply of iron upon which medieval England depended. It was to the exploitation of iron in the eastern part of the Weald that Caesar alluded in 55 B.C., though he was misinformed as to the supply available.¹ Pottery of this period has also been reported as found in slag-heaps—the refuse of iron-working—near Ticehurst and Dallington and also in Eridge Park,² and at Seddlescombe³ and Crowhurst,⁴ near Hastings. What appear to have been fortified mining-camps were erected at Saxonbury, near Frant, and in Piper's Copse, near Kirdford; each has yielded evidence of iron-smelting together with pottery of this phase. Saxonbury,⁵ excavated by Mr. S. E. Winbolt in 1929, is a hill-top fort with an inner enclosure surrounded by the footings of a massive stone wall, not now visible on the surface. This is overlaid at the north end by the ditch and bank of the outer ring which is therefore later, and presumably an enlargement of the original site, enclosing about 1½ acres. An interesting observation is that the fabric of some of the pottery contains powdered iron-slag. The fort in Piper's Copse, Kirdford,⁶ is of nearly the same area, with strong ramparts, 14 feet high above the ditch where best preserved. Its chief peculiarity lies in its lowland situation, near a stream, at about 120 feet above sea-level. At present the site is hidden in dense undergrowth, but a fox recently uncovered a small iron-smelting hearth with charcoal, iron ore and a few small scraps of late Iron Age pottery. The defences of these settlements were no doubt raised by prospectors for iron, as a protection against outlaws, hostile tribes and wolves.

Two other settlements have been discovered by Mr. I. D. Margary, F.S.A., in the Ashdown Forest.⁷ One is a five-sided enclosure with straight sides, half a mile south-east of Gills Lap Clump, and containing about 1¼ acres. Several pieces of late Iron Age pottery

¹ *Gallie War*, v. 12—'In maritimis ferrum, sed eius exigua est copia.'

² *V.C.H.Sx.*, iii (1935), p. 31.

³ *S.N.Q.*, xi (1947), p. 148.

⁴ *S.A.C.*, lxxix (1938), p. 224.

⁵ *Ibid.*, lxxi (1930), pp. 223–36.

⁶ *Ibid.*, lxxvii (1936), p. 245.

⁷ *S.N.Q.*, iii (1930), pp. 71–6 (51/473314 and 51/474311 respectively).

were found on the original bottom of the surrounding ditch, thus giving the clue to its date, though no indication was forthcoming as to its purpose. The other site lies a little to the south, at King's Standing, where traces of a settlement of pre-Roman and Roman date were found by Mr. Margary, overlaid by the remains of a medieval observation post in connexion with the deer forest. Here were also found a few lynchets of Celtic type, but as the site adjoins a Roman road this unusual forest-settlement may belong mainly to that period.

It is perhaps to this phase that the promontory fort above High Rocks, Tunbridge Wells, should be attributed. This fort, described by Mr. J. H. Money,¹ encloses 20 acres, and is bounded on the north and west sides by the cliffs of the High Rocks, and on the south and east by a double rampart having a well-defended entrance at the south-east corner. A somewhat similar promontory fort exists at Philpotts, near West Hoathly, defended on two sides by cliffs and on the third by a rampart.² Neither of these forts has yet, however, been definitely dated.

Goosehill Camp, consisting of two widely spaced concentric ramparts situated in an indefensible position on the steep eastern slope of Bow Hill, near Chichester, may belong to the class of 'hill-slope forts' described by Lady Fox as existing in south-west Britain. These are explained by her as cattle-rearing establishments of the Iron Age.³

Before closing this chapter we must notice briefly some ornamental bronzes which are referable to Phase III. The first is a linch-pin of a chariot, the pin of which is of iron, while the ornamental top, representing the heads of animals, is of bronze (fig. 86). This was found in a Roman rubbish-pit at Hassocks, but is certainly of native pre-Roman workmanship.⁴ A somewhat similar linch-pin top, but lacking the zoomorphic terminals, found on the Downs at Applesham, is in the Alnwick Castle Museum, Northumberland. The next is a bronze terret-ring for reins, found at Alfriston, and

¹ *Ibid.*, viii (1940), p. 33; S.A.C., lxxxii (1941), p. 104 (51/560382).

² *Ibid.*, lxvi (1925), p. 177 (51/348322).

³ *Arch. J.*, cix (1953), p. 1 (41/830126).

⁴ S.A.C., lxxviii (1927), pp. 277-9.

now in the British Museum.¹ Then we have an engraved bronze plate found in the village-site at the Shepherd's Garden in Arundel Park² (fig. 87). The purpose of this object is quite uncertain, but its

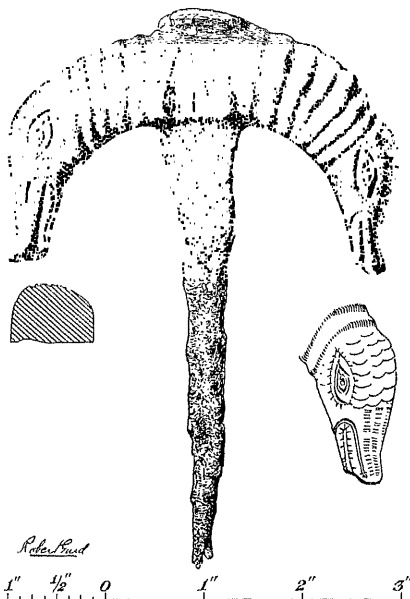


FIG. 86.—LINCH-PIN OF CHARIOT (BRONZE AND IRON), FROM HASSOCKS (L.M.) ($\frac{3}{8}$)

form will best be appreciated from the accompanying drawing. It is dated on stylistic grounds to the early part of the first century A.D. An imported 'thistle-brooch' of like date comes from the same site, as also does a bronze connecting link of a belt, probably worn in

¹ *V.C.H.Sx.*, i. p. 322.

² *Ant. J.*, xvi (1936), p. 103.

the middle of the back, opposite the buckle; ¹ and a second specimen of similar character was found in the village-site at Charleston Brow, near Fittle Beacon, in a hut of this date.²

It is possible that it is to this last phase of the Iron Age that one should attribute a glass 'eye' bead which was found by Mr. Horace Brightwell on the southern slope of Little Round Down, Harting, in 1936, associated with Roman pottery (fig. 87).³ The glass of

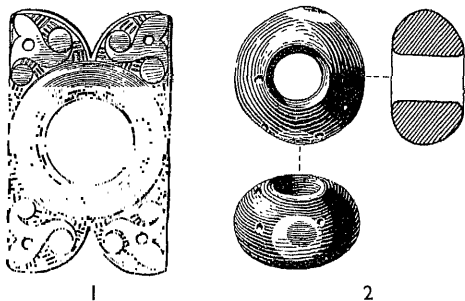


FIG. 87.—(1) ORNAMENTAL BRONZE FROM THE 'SHEPHERD'S GARDEN', VILLAGE-SITE, ARUNDEL PARK (LITTLEHAMPTON M.) ($\frac{1}{4}$) AND (2) BLUE GLASS 'EYE' BEAD FROM HARTING DOWN (PRIVATE COLL.) ($\frac{1}{4}$)

which the bead is made is a rich royal blue, very beautiful when viewed against the light, and the 'eyes', of which there are two, consist of inlays of an opaque white material with a green centre—probably enamel. According to the late Mr. H. C. Beck such beads are not common and have mostly been found in the Iron Age barrows of Yorkshire. A smaller specimen that originally had four eyes, all of which have fallen out, was found at the Caburn.⁴ The polychrome character of the Harting bead points to a relatively late date in the Iron Age, though there is no reason why it should not have survived into the Roman period as an heirloom. It is said

¹ *S.A.C.*, lxiv (1923), p. 201.

³ *S.N.Q.*, vi (1937), p. 243.

² *Ibid.*, lxxiv (1933, p. 168.

⁴ *S.A.C.*, lxxviii (1927), p. 19.

that glass beads, always blue, are worn by the Arabs of Palestine and Arabia as a protection against the evil eye. Such a purpose might explain the eye decoration on our beads.

The only burial we have of this period is an inhumation at Eastbourne, accompanied by an imitation Belgic butt-beaker (plate XXVIII, 2).¹ The interest of this lies in the fact that while simple burial was the rule among the native Britons, the Belgae usually cremated their dead.

CONCLUSIONS

Looking at the Iron Age as a whole we see that in the space of five or six hundred years the rate of progress was immensely quickened, out of all proportion to what had gone before. Scattered settlers were first organized into tribal groups, and these were in turn absorbed into larger kingdoms. We shall next see how even these kingdoms were incorporated in what was then a world-wide Empire—that of Rome. Far from being savages, as the 'Ancient Britons' have so often been depicted, their material culture was at least as advanced as that of the Scottish Highlands before the break-up of the clan system in the eighteenth century. Perhaps it was even more advanced, when their relatively peaceful devotion to agriculture is taken into account—due largely to their favoured position in the sunny cornlands of the south.

¹ *S.A.C.*, lxxi (1930), p. 263; *Ant. J.*, xi (1931), pp. 71-3.

Chapter X

ROMAN SUSSEX

Thou art a Roman; be not barbarous.

—*Titus Andronicus*

WE have so far reached a point in our story where we have seen the inhabited parts of Sussex divided into two tribal areas: the western, known as the Regni or Regnenses, was half-Belgicized and probably had its capital on the coastal plain near Selsey; the eastern remained more or less independent of the Belgae and consisted of South-eastern B people, incorporating elements of the Wealden culture, especially at the Caburn. At the death of Cunobelin, the Belgic high-king of south-eastern Britain, about A.D. 40, his erstwhile dominions were thrown into a chaos of civil strife, not only between his sons, Caratacus, Togodumnus and the exiled Adminius, but with the rebellion of countless local chiefs.¹ This was the opportunity Rome had been awaiting for annexing Britain and making it part of the Empire, so that in A.D. 43, in the reign of the Emperor Claudius, the long-planned invasion took place.

Among the British chieftains of this time was one Cogidubnus or Cogidumnus, who was friendly to the Romans and was rewarded by them for his faithfulness, not only by being confirmed on his throne, but by having other 'states' (*civitates*) placed under his jurisdiction.² This man was evidently a local king before the arrival of the Romans, but we are not told in what part of Britain his dominions were, nor from what city he ruled. The only other reference to him occurs in a famous inscription which was discovered

¹ For an excellent account of the history of this time see *Arch. J.*, lxxxvii (1931), pp. 309-21; also *Arch.*, xc (1944), pp. 1-46.

² Quaedam civitates Cogidumno regi donatae (is ad nostram usque memoriam fidissimus mansit) vetere ac iam pridem recepta populi Romani consuetudine, ut haberet instrumenta servitutis et reges.—Tacitus, *Agricola*, 14.

in Chichester in 1723; this is the dedicatory inscription of a temple to Neptune and Minerva which once stood at what is now the north-east corner of North Street and Lion Street, and it is dated by its style of lettering to about A.D. 60-70, or about the time of Nero. Here we learn that the temple came into being 'by the authority of Tiberius Claudius Cogidubnus, King and Imperial Representative in Britain'. Now as Cogidubnus never held that supreme rank for the whole of Britain we must assume that he held it in an honorary capacity for the district over which he was a vassal king, so that we may infer that Chichester and the tribe of the Regni must have formed part of his dominions. This, indeed, is probably the reason why Chichester, otherwise called Noviomagus, was also called Regnum, or 'The Kingdom', while the tribe itself came to be called the Regni or Regnenses, or the people of the Kingdom. At any rate we may safely infer that one of the 'states' which were placed under the authority of Cogidubnus by the Romans was east Sussex.

Whatever may have been the feelings of the South-eastern B people of east Sussex towards the Romans, that curious enclave of exclusive, conservative descendants of the old Wealden folk who occupied the Caburn determined on resistance. The feeble rampart which had been put up a century and a half earlier by the Caburn I people as a defence against the Wealden folk was by now quite useless, so a magnificent new outer line of defence was thrown across the north side of the fort where the approach was level and easy. Without going into complex details which can be studied in the original excavation reports ¹ we may note that a palisade of posts set about 1 foot apart was erected near the outer lip of the old ditch and incorporated in a massive new rampart (plate XXII). The soil for the latter was derived, partly by clearing out the silt from the old ditch behind it, but mainly by the digging of an exceptionally wide, flat-bottomed ditch in front of it. At the same time the gateway was entirely reconstructed. To this day this outer rampart still stands 20 feet high above the bottom of the outer ditch, but the latter is so immense that the quantity of chalk excavated from it was far greater than was needed to build the rampart, and so we find that the

¹ S.A.C., lxxix (1938), p. 169; lxxx (1939), p. 193.

excess material was spread out to form a level terrace to the north. A considerable labour force must have been available to accomplish so much with only primitive tools and in the haste necessary in an emergency. Fortunately for us the new rampart can be dated by the fragments of a pink jug of a type that enjoyed a short-lived vogue during the reign of Claudius, thus confirming that this re-fortification was done at the time of the Roman Conquest which occurred during that reign.

The new outer ditch is of special interest because of its unusual width, a feature which finds a British parallel in the hill-fort of Oldbury, near Sevenoaks—a site which was re-fortified by the Belgae against the Romans at about the same time.¹ We now know that the wide, flat-bottomed ditch was a defensive measure devised by the Gauls of northern France during the campaigns of Julius Caesar just a century earlier than this. The Roman method of attacking such forts was to bridge the ditch by means of a ramp made of brushwood and earth under cover of a *testudo*, and Caesar actually describes this method in his account of the taking of a hill-fort in Kent—possibly Bigberry, near Canterbury. The wider the ditch, the more difficult the attackers would find it to carry out the usual method of bridging by a ramp, so that the wide ditch became the standard method of defence against attack by Roman legionaries. It is remarkable that a century after Caesar's time the Britons at the Caburn and at Oldbury remembered to adopt the same device against the descendants of their old enemies.

We know from Suetonius that the future Emperor Vespasian reduced more than twenty hill-forts (*oppida*) in the south of Britain at this time, of which the chief was Maiden Castle in Dorset.² At any rate the people of the Caburn defied the Romans in vain, for the Caburn was taken. The timber-work of the gateway was set on fire, and among the relics recovered nearby are the bronze chapes of two Roman scabbards and the binding of another. It is tempting to think that the attackers may have used the rampart of Ranscombe Camp, a quarter of a mile to the west, as their base, but of this we

¹ *Arch.*, xc (1944), pp. 139-41.

² *Maiden Castle, Dorset*, p. 61; Suetonius, *Vespasian*, iv.

cannot be sure, for though pottery of mid-first century date, alien to the Caburn tradition, has been found in abundance along and behind this rampart, the evidence of occupation here continues into the second century also.¹

Unfortunately the destruction of all remains of the hill-fort on Castle Hill, Newhaven, prevents us from knowing how that settlement reacted to the Roman Conquest. All we can say is that, whereas the Caburn was totally abandoned from this time, Castle Hill continued to be inhabited for another two centuries. It is likely enough, then, that east Sussex may have been one of the 'states' that were placed under the jurisdiction of Cogidubnus at Chichester; that city was henceforward to be the cantonal centre for the whole of Roman Sussex, and her forum was to be the principal market.

We must rid ourselves of the too prevalent idea that an army of Italians from Rome held the conquered Britons in a yoke of slavery by military force. In the first place, very few of the personnel of the Roman armies or their officers were by birth inhabitants of the city of Rome or even Italians; racially they included all the peoples of the then known world, Gauls, Germans and Spaniards perhaps predominating, with a sprinkling of Arabs, Africans and others, all bound together politically as 'Romans', irrespective of race or creed. In like manner, once Britain became incorporated in the Empire, the natives, though Celts by race, became 'Romans' politically. There was therefore no antithesis and no clash between Roman and Briton, and the latter adopted to a greater or less extent, according to his means and position, Continental ways of living, imported pottery, and the Latin tongue.² All alike benefited by the Roman peace, orderly government and organization. The actual influx of fresh blood from across the sea may have been quite small, and, as the military were stationed in other parts of Britain, must have been provided mainly by traders. We shall see, therefore, that the best and fattest lands in Sussex—according to Continental rather than native standards—were occupied by the wealthier Britons, who lived in Continental style, while the peasants continued as before to till the chalk Downs,

¹ *S.N.Q.*, v (1934), p. 124.

² See R. G. Collingwood, *Roman Britain* (1923), pp. 11–21.

using the Celtic field-system as their forebears had done already for a thousand years, and living in native villages like those of the Iron Age, while absorbing such crumbs of Roman culture as came their way. We shall find, therefore, such evidences of exotic Roman culture as are embodied in towns, country houses, certain burials and engineered roads, mainly on the coastal plain and in parts of the Weald; while the poorer natives remain very much in evidence with their villages and lynchets on the hills where they had dwelt since corn and cattle were first known.

The remains of the Roman period in Sussex are very numerous, and to compile a catalogue of them would far exceed the limits of space available. Fortunately this work has already been done by the late Mr. S. E. Winbolt in the *Victoria County History*,¹ to which the reader is referred for details, while our part will be to give a brief general account of the period, supplemented by particulars of a few recent discoveries and other items of special interest (fig. 88).

CHICHESTER

Only one town existed in Roman Sussex, and this was Chichester, known variously as Noviomagus,² Regnum, and perhaps Noviomagus Regnensium³—the latter to distinguish it from several other places of the same name, both in this country and on the Continent. As we have already seen, Noviomagus is a Celtic name which signified 'new (city on the) plain', the sense of *magus* being that of a spacious, roomy dwelling, in obvious contrast to the old cramped hill-forts.⁴ We have also seen that there seems to be insufficient ground for thinking that Chichester was founded by the princes of the Commian dynasty in direct succession to the local hill-forts, but

¹ *V.C.H.Sx.*, iii (1935), pp. 1-70.

² Ptolemy, *Geographia*, ii, 3, 13; i, 15; see *S.A.C.*, lxx (1929), p. 77.

³ Haverfield and Macdonald, *The Roman Occupation of Britain* (1924), p. 192. In Holland 'Noviomagus' has survived in the place-name Nijmegen.

⁴ The modern Welsh equivalent of this word is *ma* = place, and in Irish place-names the cognate form appears as 'moy' = a plain.

rather that the latter had been replaced by an unwallèd town and mint near Selsey in the time of Tincommius. Such a Belgic capital, if it ever existed, would have been replaced by Chichester under the Romans, for, on the one hand, there is no sufficient evidence for a pre-Roman settlement on the site of Chichester, and, on the other, it is clear from the imported Gallo-Roman pottery and other remains that the occupation of that site began about the middle of the first century A.D., just after the Roman Conquest.¹

The town was at first unwallèd, for recent sections through the city ramparts have shown that these were not constructed before the end of the second century.² Their form, which consists of an earthen ramp with exterior facing of flints and mortar, and traces of a ditch set a little distance in front, is a translation of the earth and timber defences of the hill-forts into more durable earth and stone, but the sequence of development is sufficiently obvious. The general fortification of Roman cities in southern Britain which took place at this time (about A.D. 200) may have been a reaction to the disasters in the north, where northern barbarians had defeated the Roman arms and advanced as far south as York and Chester.

The bastions, of which sixteen are traceable, were not added to the wall until after A.D. 275 when the Saxon raiders became troublesome. The masonry of the city wall in its present form is medieval or later, probably encasing a core of Roman work.

The city had four gates, facing the four cardinal points, and these were connected by two main streets which crossed one another at right angles at the centre, where the Cross now stands. The plan of the city is polygonal, enclosing about 100 acres; this closely resemble both in shape and size the Roman city of Calleva at Silchester in north Hampshire. Few structural remains of buildings have been found within the city in recent years, as so much was destroyed when the cellars of the present houses were constructed. Since 1947, however, excavations have been carried on by the Civic Society of

¹ S.A.C., lxxvi (1935), p. 142.

² *Ibid.*, lxxv (1934), p. 107; xc (1951-2), p. 184. Dr. A. E. Wilson informs the author that the existence of an earlier earth and timber rampart attributed to the end of the first century A.D. is no longer accepted.

Chichester, under the direction of Dr. A. E. Wilson, in certain open spaces within the city.¹ These have shown that the Roman city was far from being crowded with buildings, and an attempt has been made to sort out the jumble of pits and other structures which accumulated on the site century after century, not only through the 350 years of Roman rule, but through the Saxon, Norman and medieval periods as well. Perhaps the most interesting structural relics of the Roman period which came to light during these excavations were a steened well and some cement-lined pits belonging to a laundry or possibly a small fulling-mill situated in the garden of East Pallant House.

What we lack in buildings is more than made up in inscriptions, of which no fewer than seven have been recorded, and of which at least three belong to the first century.²

The most important is the famous Cogidubnus stone, to which we have already referred. The translation of the inscription reads: 'To Neptune and Minerva this temple is dedicated, for the safety of the Imperial Family, by the authority of Tiberius Claudius Cogidubnus, King and Imperial Representative in Britain, by the guild of Smiths and its associated members from their own contributions, the site being presented by [Clem]ens, son of Pudentinus.' As we have said, the date of this inscription is likely to be between A.D. 60 and 70, and it reveals to what an extent Romanization had already taken place in Chichester, and how immensely proud the vassal king was of his Roman title. This is one of the most important Roman inscriptions in Britain, and it may now be seen built into the wall of the Council House in North Street, under the portico, where it is protected by glass.

There was also an altar found near the Cross in North Street, but now lost. The inscription on it, dating from about the end of the first century, read: 'Sacred to the Genius, Lucullus son of Amminius set up (this altar) at his own expense.' It is to be noted that Amminius was a Belgic name.

Part of a large dedicatory monument has recently been found on

¹ S.A.C., xc (1951-2), p. 164.

² For these inscriptions see *V.C.H.Sx.*, iii, pp. 13-15.

the site of the new Post Office on the north side of West Street.¹ This dates from the late second or early third century, and on one side bears part of an inscription which translated reads: 'To Jupiter, Most Excellent Majesty, in honour of the Imperial Family . . .' On another face of the stone is part of a sculpture in relief, depicting the upper parts of the figures of two women, each with her right hand on the other's left shoulder.

Finally, we have three tombstones inscribed with the names of the deceased. One commemorated an old man, aged 85, with an undecipherable name; another reads: '[Bodi]cca Aelia Cauva, daughter of . . ., aged 36'; while the third was to Catia Censorina, aged 23. These British ladies had adopted fashionable Roman names, or added them to their own.

Coins found in the city at various times range from Germanicus (A.D. 4-19) down to Valentinian III (A.D. 425-55), so that we have reason to believe that the city was occupied from the first to the fifth century.

Quantities of Roman pottery, much of it in a fine state of preservation, have been found in excavations in the city, and in an extramural cemetery now partly covered by the St. Pancras burial ground, outside the East Gate.² The rescuing and preservation of all this material is a very serious problem at the present time, for unfortunately Chichester was so unmindful of her illustrious past that she actually sold her Museum in 1924, thereby incurring a disgrace which can only be expiated by the formation and maintenance of a new and better Museum. This is the objective of a group of public-spirited ladies and gentlemen who are amassing a very fine collection of these eloquent relics, which are temporarily housed in the Guildhall in the Priory Park.

A discovery of considerable interest is the amphitheatre, which now appears as a grassy hollow in a meadow near Whyke Lane, just outside the East Gate. Trial excavations by Mrs. Grahame Clark (Miss G. M. White) have shown that it was constructed in the first century, but was disused by the third century.³ Here games and

¹ *Ant. J.*, xv. (1935), pp. 461-4.

² *S.A.C.*, lxxx (1939), p. 171.

³ *S.C.M.*, x (1936), pp. 139-42; *Ant. J.*, xvi (1936), pp. 149-59.

combats would be staged for the amusement of the populace, and perhaps public business transacted. The arena, which was nearly 200 feet long, was bounded by a stone wall, behind which an earthen bank supported tiers of wooden seats for the spectators.

ROMAN ROADS

It will next be convenient to consider the system of roads in Sussex at this time. The Romans were the first to engineer roads for long-distance traffic, instead of relying on native trails which had come into being as a result of immemorial usage. The roads of Sussex, then as now, may be grouped as first, second and third class.

(1) First-class roads connected one town with another, and were so aligned and constructed as to accomplish the journey in as nearly as possible a straight line, with as few bends as the nature of the country demands. We have three such roads in Sussex; one led from the West Gate of Chichester westwards into Hampshire, with its ultimate objectives at Clausentum (Bitterne, near Southampton), and Venta Belgarum (Winchester). The Sussex portion of this road does not quite coincide with the modern road to Emsworth, but the detailed line has not been worked out. A better known road is the Stane Street which led from the East Gate of Chichester in a north-easterly direction, over the Downs and through Pulborough and Billingshurst to London. This road was provided with a posting-station (*mansio*) at intervals averaging twelve miles—such distance representing a day's journey on foot or for an ox-waggon. Two of these 'inns' were situated in Sussex—one at Hardham,¹ perhaps later transferred to Pulborough, and one at Alfoldean,² near Horsham. Such a *mansio* consisted of an embanked rectangular area of $2\frac{1}{2}$ to 4 acres, through the middle of which the road ran, and within which were sundry buildings, cart-sheds and stables, performing much the same functions as those of an old-fashioned English inn in the days of

¹ Excavated by Mr. S. E. Winbolt; *S.A.C.*, lxviii (1927), pp. 89-132 (51/031174).

² Ditto; *S.A.C.*, lxiv (1923), pp. 81-104; lxv (1924), pp. 112-57 (51/117328).

stage-coaches. They were not in any sense military camps, nor was Stane Street a military road, as is so often imagined. The dating of these posting-stations by the pottery and coins found in them indicates the period during which the road itself was in use. Hardham, for instance, flourished between A.D. 50 and 150, and as its *raison d'être* was the road, it follows that the construction of the latter must have been taken in hand almost immediately after the Conquest, and as soon as Chichester had been made the cantonal capital. Pre-Roman and Belgic pottery found at Hardham is likely, therefore, to indicate a survival of native potting during the earlier years of the Roman period. Alfoldean was occupied from the first century till the fourth, so that we may say that Stane Street was in use throughout this time.

Near the Alfoldean posting-station Stane Street crossed the River Arun by a bridge, the remains of which were discovered by the late Mr. Winbolt at a point 17 feet east of the modern bridge.¹ It seems that stone piers were laid on baulks of timber which in turn were secured to the muddy bottom by means of stakes; three such piers carried a bridge of two spans, according to Mr. Winbolt's reconstruction. Many of the stakes were found in position, and quantities of shaped stones and heavy tiles. It seems that the Roman engineers knew that wood was almost imperishable when submerged in boggy situations, and that if anchored by stakes it makes a good foundation for masonry.

On the open ground on the summit of the Downs near Bignor Hill Stane Street preserves its original form, unspoilt by modern encroachments. Here it takes the form of a high and rather narrow causeway or *agger* built up of many horizontal layers of flints and rammed chalk, including beach pebbles which must have been fetched at least four miles from the nearest part of the 100-foot raised beach.² At a distance of 25 feet from the base of this *agger* on each side runs a small road-ditch, the width of the whole road from centre to centre of the ditches being 85½ feet. This arrangement may have been designed to ensure a space on either side of the *agger* that would be kept clear of scrub so as to afford no cover for robbers; at any

¹ S.A.C., lxxvii (1935), p. 183; S.N.Q., vii (1939), pp. 146, 151.

² S.A.C., lviii (1915), p. 136.

rate it was not so unusual as might be thought, nor need it have been confined to roads running through wild, uncultivated country. Mr. A. W. G. Lowther observed a section through a derelict portion of Stane Street on the coastal plain between Chichester and West-hampnett in 1937 and found that, though the *agger* had been greatly reduced by ploughing, it was accompanied by the same side-ditches with very much the same overall width, namely, 90 feet.¹ Mr. I. D. Margary has drawn attention to other examples of Roman roads with widely spaced side-ditches occurring at what look like standard widths of approximately 63 and 84 feet.² It is seen at once that these recurring dimensions of 63 and 84 feet are related to one another in the ratio of 6 : 8, and suggest the use of a rod of 10 feet of $12\frac{1}{2}$ inches, 8 such rods being the standard width for a first-class road, and 6 rods for a second class road. A foot of $12\frac{1}{2}$ inches is not a known standard apart from these inferences, but it may possibly be seen again in the details of a lead cistern found in the River Arun near Pulborough, to be mentioned presently.³

Another first-class road ran from the North Gate of Chichester in a north and then north-westerly direction with Silchester in the north of Hampshire as its apparent ultimate objective. This road is a recent discovery which was made in the course of routine examination of air-photographs by the Archaeological Division of the Ordnance Survey. The first clue was provided by a photograph showing a small rectangular earthwork bisected by a length of straight road at Iping Marsh, four miles north-west of Midhurst, and this was followed up by field-work by Mr. I. D. Margary who was able to trace the line of the road from Chichester, by Mid Lavant, over Linch Down, across Iping Common and Dunner Hill to the little square earthwork which, as was expected, proves to be a post-ing-station situated about 14 miles from Chichester.⁴ The road proceeds towards the north-west, but is lost at Milland near the Hamp-

¹ *S.A.C.*, lxxxii (1941), p. 110.

² *Ant. J.*, xix (1939), pp. 53, 440; xxiii, p. 157.

³ *Ibid.*, xxiii (1943), p. 155.

⁴ *S.A.C.*, xci (1953), p. 3. Outline in *S.C.M.*, xxiv (1950), p. 432. Reference for *mansio*: 41/843260.

shire border, heading almost direct for Silchester, some twenty-five miles distant.

(2) Secondary roads were also engineered in straight alignments, but served either to connect towns with country districts or as links between other roads. Several second-class roads existed in Roman Sussex, but all had been entirely lost sight of until Mr. I. D. Margary, F.S.A., recovered them by brilliant field-work, including air-photography and patient examination of the ground.¹

(a) The first² was a branch from Watling Street, a little south-east of London; a large part of its course as far as Edenbridge was already known, but farther south not a trace of it had ever been found. Mr. Margary picked it up by air-photography on the high ground of Ashdown Forest, north of Camp Hill,³ where it has the characteristic form of a raised and metalled *agger* between two flat spaces which are bounded on either side by ditches 62 feet apart. Mr. Margary then succeeded in tracing the road northwards to link up with the known section near Edenbridge, and southwards until it was finally lost on Malling Downs, by Lewes. It is clear that its southern objective was not any single town, but that it was designed to link up with the farms of the eastern Downs, so that there might be direct access to the London markets for the corn grown in East Sussex. We know from historical sources that corn was exported from Britain to the Continent at this time—sometimes in very considerable quantities,⁴ and much more must have been sent north for the use of the garrisons in the military zone on the Scottish border. A branch of this road ran by Glynde and over Firle Beacon⁵ in the direction of the mouth of the River Ouse, where there may have been a small port. In addition to conveying corn from the Downs, this Ashdown Forest road no doubt served the iron-works in the forest, notably those at Maresfield. In fact, for very many miles the

¹ I. D. Margary, *Roman Ways in the Weald* (London, 1948).

² S.A.C., lxxiii (1932), pp. 33–82; lxxiv (1933), pp. 17–43; also *Surrey Arch. Coll.*, xl, p. 97.

³ S.N.Q., iii (1930), pp. 1–5.

⁴ S.A.C., lxiv (1923), p. 62.

⁵ *Arch. J.*, lxxii (1915), pp. 203–13.

metalling consists simply of slag from the iron-works, which attests the extent and importance of this industry by the first century A.D. In more than one place, notably near Holtye, where a stretch of the original surface may be seen preserved, the slag has been so concreted together by natural agencies that it is quite as hard as a modern road and has a smooth surface which preserves traces of shallow wheel-ruts.¹ On one occasion after a thunderstorm it is recorded that the line of this iron road hereabouts was plainly revealed when it was struck by lightning, so that the corn growing over it was blasted. The date of this road is placed by Mr. Margary at about A.D. 100.

(b) Mr. Margary's second discovery was a junction road which left the first at Barcombe Mills and ran westwards under the foot of the Downs to join Stane Street near the south entrance of the post-ing-station at Hardham.² The line runs through East Chiltington, *Streat*, Ditchling and Hassocks, where there is a large and important Roman cemetery; then by Danny, where was a *villa*; crossing the River Adur by *Streatham* Farm, and so north of Wiston, where were other Roman buildings; thence west-north-westwards in a straight line past Buncton towards Pulborough, passing another *villa* at Lickfold and crossing the River Arun a mile south of Pulborough. The purpose of this road was apparently to act as a corridor to connect up all the minor local roads which came down from the farms on the Downs. An early date is postulated for this road by the early pottery found in the Hassocks cemetery.

(c) Mr. Margary's third road runs roughly parallel to the first, and comes southwards from the direction of London, by Selsfield Common, Ardingly, west of Haywards Heath, Burgess Hill, and so to Hassocks where it joins the east to west road.³ Beyond this it probably linked up with the Downland tracks to serve as yet another line of communication between the corn-lands of Sussex and the London market. No posting-houses have been identified on its course, nor does it appear to have been directly connected with the Wealden iron industry.

¹ *S.A.C.*, lxxxi (1940), p. 43.

² *Ibid.*, lxvi (1935), pp. 7-34; xci (1953), p. 12.

³ *Ibid.*, lxxvii (1936), p. 27.

(d) A secondary road possibly supplying a port at the mouth of the River Ouse (now lost by coast erosion), or else making for the Roman establishment on Castle Hill, Newhaven, has been traced by Mr. Margary taking a fairly straight course from Denton, near Newhaven, north-eastwards across the Downs to Selmeston and thence to Lower Dicker, where it is lost.¹ The course taken by this road suggests that it may have been intended chiefly for the conveyance of iron from the mines in the eastern part of the Weald for export from a harbour at the mouth of the River Ouse.

Parallel with this road there is a curious rectangular arrangement of lanes in the neighbourhood of the villages of Ripe and Chalvington (six miles due east of Lewes), forming a grid of which the Roman road seems to form one side. Mr. Margary has examined this area very carefully, and has shown good reasons for believing that this 'road grid' may be a relic of Roman centuriation comparable with similar features visible in Italy to-day.² By 'centuriation' is meant the Roman method of laying out areas of land by accurate survey for purposes of settlement and cultivation by discharged soldiers or other tenants. The area in question forms a rectangle, two miles long by one and a quarter miles wide, and is broken up into smaller blocks by lanes and hedges, the intervals between which bear a striking relation to the known Roman land measurements. A certain amount of deviation occurs from the strict plan as we may suppose it was originally laid out, but even this may be taken as evidence of age, for the rectangularity, as we see it to-day, can scarcely be the outcome of the ordinary haphazard methods of Saxon and medieval land-division.

(e) The late third century fortress of Anderida at Pevensey (see below, p. 295) was approached by a secondary road from the west. This road, which has also been traced by Mr. Margary,³ may also have been a late construction like Anderida itself; at any rate it differs markedly from those hitherto described, in that the use of long, straight alignments has been abandoned in favour of a number of short, straight stretches connected by numerous bends and curves,

¹ I. D. Margary, *Roman Ways in the Weald*, p. 185.

² S.A.C., lxxxi (1940), p. 31.

³ *Ibid.*, lxxx (1939), p. 29.

not unlike modern roads. The general line ran from Pevensey westwards to Polegate, crossed the River Cuckmere half a mile south of Arlington, and at Selmeston joined the road from Newhaven to Lower Dicker. West of Selmeston there is a network of minor roads between Firlc and Glynde which no doubt connected up with the London-Lewes road on Malling Down.

(f) In view of the relative abundance of Roman remains on the coastal plain it has long been suspected that a road may have run eastwards from Chichester in the general direction of Brighton. No unmistakable signs of such a road have, however, been traced, but Mr. Margary has expressed the opinion that such a road may have branched off from Stane Street at Westhampnett and in the main followed the line of the present Arundel-Brighton road, crossing by ferry the estuaries of the Arun at Arundel and of the Adur at Old Shoreham.¹ The original course of this road, as postulated, was much straighter than the modern road, but, as in the case of the road to Anderida, it would have consisted of many short lengths of straight road and many minor changes of direction—perhaps a sign of late construction.

(g) Chichester had a South Gate, and many Roman remains lie on the plain to the south of the city. So far no actual road has been traced in that direction, but there is a reference in a Saxon Charter of A.D. 930 to a 'stanstrete' which passed through or near Kingsham.²

(3) Under the head of third-class roads we may group all those native trails which were not laid out or engineered, but just 'grew'; the immemorial ridgeways which traversed most of the ridges and spurs of the Downs, connecting the hill-farms, were unmade and unfenced except where they ran between cultivated fields, when they were either delimited by banks, or else became terraced between fields in the form of a 'double lynchet'. Remains of short lengths of these 'field-ways' are very common among the lynchets of the Downlands. Among the best specimens are: one running from the Dyke by Hangleton to Old Portslade and the mouth of the River Adur;³ the ridgeway of Thundersbarrow Hill, near Shoreham, with

¹ S.N.Q., xi (1947), pp. 141, 161.

² Birch, *Cart. Sax.*, ii, pp. 348-9.

³ B. and H.A., iii (1926), pp. 28-41.

branches running towards neighbouring farm-sites;¹ and a fine stretch on Park Brow (Sompting), with a branch running towards Cissbury (this road had been in use since the beginning of the Iron Age);² others may be seen on Buckland Bank (Falmer),³ Charleston Brow (near Firle Beacon),⁴ and Norc Hill (Eartham).⁵ The convergence of at least three roads on the mouth of the River Adur suggests that a port may have existed there, though long since carried away by coast erosion. These Downland farm roads descended the steep northern face of the chalk hills by means of terrace-ways which have been to some extent engineered, having been cut back into the face of the hill so as to form a ledge. Such terrace-ways are very numerous, and formed a means of communication between the Downland settlements and the swine-pastures of the Wealden Forests,⁶ as well as a means of conveying corn to London *via* the system of secondary roads already described.

COUNTRY HOUSES AND FARMS

Scattered mainly over the rich corn-lands of the coastal plain, and of the Weald near the foot of the Downs, are the remains of several Roman villas of varying size and importance. These were not merely the residences of people of the upper classes, but were probably in most cases farms where labour was employed, sometimes on a large scale, in agriculture of a Continental variety. It is thought that they may have been akin to the manors which were later introduced by the Saxons, and there is some suggestion that they may have employed the form of cultivation in strips which was so characteristic of the medieval manor. Unfortunately the fields belonging to these villas have not survived in a traceable form, owing to the nature of the soils on which they were situated, so that we cannot be certain on this point. At any rate the villas were entirely distinct from the

¹ *Ant. J.*, xiii (1933), pp. 111 (fig. 1), 113-14.

² *S.A.C.*, lxiv (1923), pp. 30-5.

³ *Ibid.*, pp. 35-40.

⁴ *Ibid.*, lxxiv (1933), p. 164.

⁵ *Ibid.*, lxxii (1931), pp. 263-74. Other examples are cited in *Preh. Sx.*, pp. 120-1.

⁶ A select list of examples will be found in *Preh. Sx.*, pp. 122-3.

native farms, and the latter, as we shall see, continued to flourish on their ancestral Downs.

Space does not admit of more than a passing reference to the remarkably *fine* tessellated pavements of the villa at Bignor, which have been so fully described by Mr. Winbolt.¹ These, which depict such subjects as Venus, the Gladiators, the Rape of Ganymede, and the Four Seasons, are well worth a visit. Other large country houses existed at Southwick,² Angmering,³ Borough Farm and Lickfold⁴ (Pulborough), Sidlesham and Eastbourne, besides a considerable number of smaller establishments.⁵

Not far from the villa at Lickfold, about a mile south-east of Pulborough, a Roman lead cistern was dredged from a ditch on the flood-plain of the River Arun in 1943, and is now preserved by the Hon. Clive Pierson at Parham House.⁶ The vessel is cylindrical, being 1 foot 7 inches high, and 2 feet 6½ inches in diameter, with a capacity of about 46 gallons. It is made of three sheets of cast lead joined together by soldering, and the outside is decorated in relief by a crude cable-pattern formed by pressing into the clay mould the edge of a piece of wood, about 12½ inches long, incised with oblique notches. On one side, as a central device, is a Chi-rho monogram (the first two Greek letters of the name of Christ), which not only suggests a Christian religious purpose for the vessel, such as a baptistry, but indicates a date in the fourth century. Only six other similar cisterns have been traced as having been found in Britain, and no single theory as to their purpose seems to fit all the facts available. Only one of the others bears Christian symbols.

The West Blatchington site in Hove, which has yielded evidence of occupation during the Late Bronze Age and Iron Age, now became a farm which flourished throughout most of the Roman period.⁷ The farm-house, which now lies under Nos. 29 and 31, Amberley Drive (the whole area having been built over since the excavations), took the form of a small villa of basilican type; this

¹ *V.C.H.Sx.*, iii (1935), pp. 20-3 (41/988147).

² *Ibid.*, pp. 25-8.

³ *S.A.C.*, lxxix (1938), p. 3; lxxx, p. 89; lxxxiv, p. 83; lxxxvi, p. 1.

⁴ *Ibid.*, lxxviii, p. 13; lxxxi, p. 55.

⁵ *V.C.H.Sx.*, iii, pp. 20-9.

⁶ *Ant. J.*, xxxiii (1943), p. 155; *S.N.Q.*, x (1944), p. 1.

⁷ *S.A.C.*, lxxxix (1950), p. 1; xc (1951-2), p. 221.

consisted of a hall with its roof supported on two rows of posts which divided it into a nave and side-aisles like a church, though part of it was partitioned off into separate rooms. This particular building flourished at any rate during the third century. No fewer than eleven corn-drying kilns were found scattered over the area to the east of the farmhouse; these, which date from about A.D. 150 to 270, are not unlike those found on Thundersbarrow Hill (see below, p. 292). The roofing of the main flues had been destroyed, and as no suitable slabs of sandstone were found among the debris it has been suggested that they may have been roofed with a barrel-vaulting of flints set in mortar. A complex of ditches, difficult to interpret, intersected the area, and in the filling of one of them were found five cremation burials in pottery vessels. One of these contained the ashes of a small child, and with it was an earthenware feeding-bottle. Into another ditch a Roman boot had been flung, and though the leather had long since disappeared, yet so careful was the excavation that the hob-nails were found and photographed lying in the positions that they had occupied on the sole. Among the iron objects found on the site were a key, two pruning-hooks, two carpenter's bits, a linch-pin, a staple, a washer, two cramps and the head of a javelin. Some of these items are so homely that they bridge the centuries, but the javelin-head and the burial of the child with its feeding-bottle in a corner of the farmyard take us into a different world.

BURIALS AND TEMPLES

Among a number of cemeteries scattered over the inhabited area of Roman Sussex, one of the most important is that at Hassocks—about 5 acres in extent—that was discovered and destroyed during the digging of sand. This was a burial-ground of the common people, a typical grave-group consisting of an urn containing the cremated remains, a plate and a cup for food and drink offerings for the deceased. The period of use extended from A.D. 70 to 250, but mainly between A.D. 140 and 190.¹

¹ *Ibid.*, lxvi (1925), pp. 34–61 (51/296154); the vessels are in the Lewes Museum.

In contrast to this we also have some cist-burials of wealthy Britons, mainly on the coastal plain and not far from Chichester, viz. at Westergate,¹ Avisford,² Aldingbourne,³ Densworth,⁴ and Chilgrove.⁵ That at Aldingbourne consisted of a cist or box formed of flat slabs of sandstone, within which were the remains of a gilded wooden frame, a glass urn containing the ashes and covered with a sheet of cork, and two glass bottles, one of which retained traces of a scented fatty substance that was probably a cosmetic. The Avisford cist contained lamps placed in the corners on brackets to give light to the deceased on his last journey, together with numerous pottery vessels and a pair of leather sandals, studded with bronze nails.

Sussex possesses at least two—possibly three—examples of the so-called Romano-Celtic type of temple,⁶ which is distinguished by consisting of a square *cella*, averaging perhaps 20 feet each way, surrounded by the footings of a verandah, so that the resulting plan presents a square within a square. Votive offerings to the local deity may be found within—usually in the form of coins, though on the Continent they have been known to take the form of Neolithic flint axes or fossil sea-urchins.⁷ These temples, which are peculiar to southern Britain and to Gaul north of Provence and west of the Rhine, are usually found on hill-tops, where they were dedicated to local Celtic deities who were sometimes identified with the classical Mercury, Apollo or Mars. In Sussex we have the site of one on Lancing Down dated by the coins from the first to the third century,⁸ and another within the prehistoric earth-work of Chanctonbury Ring.⁹ Most of the occupation in the latter case seems to have been during the third and fourth centuries, though there was some in the first century, and we may perhaps hazard the guess that, as the site is but four and a half miles from Lancing Down, a move may have been made during the third century from one site to the other. The third possible example was found on Bow Hill, near Chichester, by

¹ S.A.C., viii (1855), p. 288.

² *Ibid.*, lxiv (1923), pp. 193-4.

³ *Ibid.*, viii, p. 292.

⁴ *Ibid.*, p. 314.

⁵ S.A.C., liii (1910), pp. 131-7.

² *Ibid.*, p. 290; xi, p. 130.

⁴ *Ibid.*, x, p. 174.

⁶ *Ant. J.*, viii (1928), pp. 311-26.

⁸ V.C.H.Ss., iii. pp. 59-60.

Mr. R. Carlyon-Britton, and this, according to coin-evidence, must have been in use throughout the Roman period.¹

The temple to Neptune and Minerva in Chichester has already been mentioned. Nothing is known of its form, but it may be presumed to have been a small example of the classical type.

PEASANT FARMS

The Romanization which made such a difference to the lives of the wealthier classes percolated through to the peasant farms to a very much less extent. While the wealthy tilled the lowlands according to new Continental fashions, the peasants continued to cultivate their ancestral Downlands, using the Celtic field-system as their forebears had done for a thousand years. Iron Age farms like those on Park Brow and Charleston Brow continued to flourish through the Roman period as if nothing had happened, except that their local pottery began very soon to be replaced by mass-produced Roman wares. But the Roman Peace added further stimulus to that already given by the Belgae to agriculture, and we find now the Downs fairly thickly covered with 'Romano-British' farms, which, apart from the pottery, do not differ much in character from those of the Iron Age. Mr. G. A. Holleyman has studied this question in the Brighton area,² and he found that in the sixty-five square miles of Downland that lie between the Rivers Adur and Ouse, no less than eleven and a half square miles (or 18 per cent of the whole) were still covered with lynchets of the Celtic field-system in 1935, while a further three square miles showed traces of having probably been so covered previous to modern cultivation; moreover, he identified in these fourteen and a half square miles—that is, over 9,000 acres—no fewer than thirty-two occupation-sites—whether of farms, hamlets or single huts—that have yielded Roman pottery on the surface (fig. 89).³

¹ *V.C.H.Sx.*, iii, p. 51.

² *Antiquity*, ix (1935), pp. 443-54.

³ Much of this evidence must have been destroyed by the ploughing up of downland since 1945.

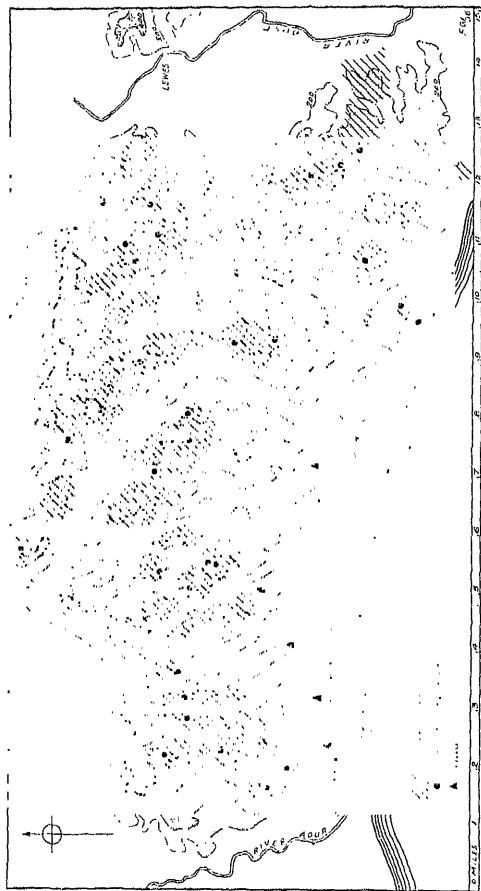


FIG. 89.—DISTRIBUTION OF PEASANT SETTLEMENTS, VILLAS AND LYNCHETS IN THE BRIGHTON DISTRICT

After G. A. Holleyman

The hatched areas were under cultivation in the Roman period

The farm-site on Thundersbarrow Hill, near Shoreham, was examined by the Brighton and Hove Archaeological Society in 1932 and proved to have been occupied from the end of the Iron Age till the end of the Roman period, viz. from the first to the fourth century.¹ The farm was the nucleus of a very large area of lynchets,

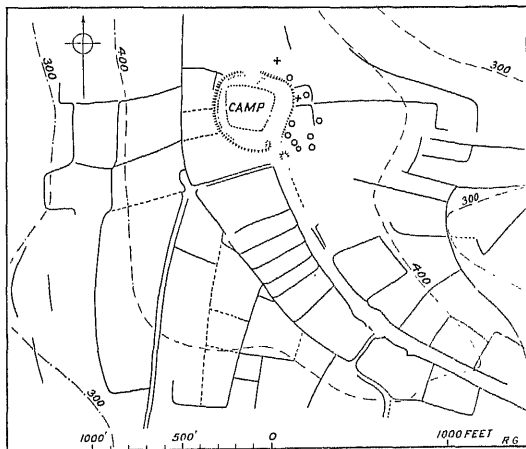


FIG. 90.—THUNDERSBARROW HILL, SHOREHAM: ROMANO-BRITISH FARM-SITE, FIELDS AND ROADS

The Camp dates from Phase I of the Iron Age and was derelict in the Roman period
 o = hut-site of farm + = corn-drying furnace

with roads branching off in the direction of neighbouring farms (fig. 90). Some of the lynchets are over 12 feet in vertical height, and sections cut through them have clearly shown how and when they were formed. The site of the farm lies on the eastern side of the highest part of the hill, abutting on the old Iron Age fort, and appears as a scatter of shallow depressions, which are the sites of wattle huts,

¹ *Ant. J.*, xiii (1933), pp. 109-51 (51/229084).

over an area of an acre or more. Among these were found the remains of two kilns or furnaces for drying corn (fig. 91). A shallow pit, some 6 or 7 feet square, and sunk 2 or 3 feet into the ground, served as a receptacle for the grain, the whole being roofed over. Underneath this chamber ran a flue consisting of a trench with walls built up of pieces of chalk set in a kind of mortar made of clay and



FIG. 91.—CORN-DRYING FURNACE, THUNDERSBARROW HILL
(FOURTH CENTURY A.D.)

(*Antiquaries' Journal*)

chalk, and roofed with slabs of Upper Greensand brought from the foot of the Downs. At the far end the flue widened into a slit which opened into the end of the corn-chamber above; at the near end it was approached from a deeper pit which formed a stoke-hole. A fire was lit at the mouth of the flue, which shows traces of great heat, and the hot air and smoke would pass along and up into the corn-chamber, and thence through a hole in the roof to the outside air.¹ In this way ears of corn would be dried before threshing and milling

¹ For corn-drying kilns see *Ant. J.*, xxiii (1943), p. 148.

or before being stored underground. The flues contained quantities of soot, in which occasional grains of charred wheat were found; this wheat was grown on the Thundersbarrow lynchets during the fourth century A.D., as is indicated by the pottery found with it. The practice of roasting or parching grain in this manner is referred to by Pliny¹ and Ovid,² but it is of some interest to note that furnaces or kilns of closely similar type were till recently used for the same purpose in the Hebrides.³

Another peasant farm was established at Cissbury, probably within the derelict ramparts, and all the interior that was not occupied with flint-mine shafts went under the plough. As a result the soil in its downward creep filled up the angle behind the ramparts, as shown in the section, fig. 76, No. III.⁴ Other farms of this period have been examined with the spade at the Shepherd's Garden in Arundel Park,⁵ on High Dole (Telscombe),⁶ on the north-east spur of Wolstonbury Hill,⁷ and on Buckland Bank (Falmer).⁸

Perhaps the most obvious evidence of Roman culture that one sees among the peasants is the tendency to improved personal toilet and adornment. This is shown by the appearance among them of such things as an enamelled bronze pin, delicately carved bone hair-pins, depilatory forceps, a bronze ear-pick, brooches and armlets, and, finally, part of a glass vase still containing traces of a rouge cosmetic. If one may judge from the poet Claudian, two of the outstanding features of Britain in Roman eyes were Highland monsters and the use of rouge on the cheeks.⁹

The peasants' dwellings did not differ very materially from those

¹ *Nat. Hist.*, xviii, 10.

² *Fasti*, ii, 519-26; vi, 313-14.

³ Aage Roussel, *Norse Building Customs in the Scottish Isles* (London, 1934), pp. 48, 60-2.

⁴ *Ant. J.*, xi (1931), pp. 21-3.

⁵ *S.A.C.*, lxxvii (1936), p. 223.

⁶ G. A. Holleyman and Dr. A. E. Wilson, *ibid.*, lxxvii (1936), p. 202.

⁷ The late Madame de Marees Van Swinderen and Mr. G. A. Holleyman, *S.A.C.*, lxxvi (1935), pp. 35-45.

⁸ *Preh. Sx.*, pp. 93-4 (references).

⁹ Claudian, *De laudibus Stilichonis*, ii, 247.

occupied by their ancestors in the Iron Age. They were still constructed of wattle and daub, and were circular or rectangular in plan, but improvements appear at Park Brow in the form of a tiled roof, window-glass, and walls lined with plaster and covered with red, cream and grey colour-washes.¹ How far these luxuries were normal does not yet appear, but no trace of them has so far been found in other farms of this period.

IRON MINES AND BLOOMERY FURNACES

The mining and smelting of iron, which, as we have seen, was begun during the Iron Age in the comparatively rich ferruginous soils of the Ashdown and Hastings sands of east Sussex, was continued and expanded under the Romans, especially during the second and third centuries. Over a dozen sites have been found scattered over the area between East Grinstead in the north-west and Winchelsea in the south-east, most of them marked by slag-heaps containing Roman pottery, and sometimes by the actual smelting hearths and mine-pits. To judge from the quantities of slag (or 'cinder') the largest Roman iron-works were those at Oldlands (Maresfield) and at Beauport Park near Hastings. At the former site beds of iron-slag, from 2 to 10 feet deep, extended over an area of 7 acres, and at the latter there was formerly a high mound (since destroyed) covering 2 acres.²

To the list of iron-works given by the late Mr. S. E. Winbolt³ in some detail may be added further examples at Crowhurst (near Bexhill),⁴ Icklesham (near Winchelsea),⁵ and Standen (near East Grinstead).⁶

At a large Roman bloomery at Bardown, near Ticehurst, a tile was found stamped with the letters C L B R, standing for *Classis Britannica* or 'British Fleet'. This, as Mr. Margary has pointed out,

¹ *Arch.*, lxxvi (1927), pp. 8, 9.

² Oldlands, 51/475267; Beauport Park, 51/786154.

³ *V.C.H., Sx.*, iii, p. 29. See also Ernest Straker, *Wealden Iron*.

⁴ *S.A.C.*, lxxix (1938), p. 224; *S.N.Q.*, xiii (1950), p. 16.

⁵ *S.N.Q.*, vi (1937), p. 247.

⁶ *Ibid.*, vii (1939), p. 153.

indicates that the Roman naval authorities were interested in these iron-works and may have had a permanent building there.¹

The roads serving the iron-works were in the main the ancient ridgeway trails that still form the principal highways in this part of the Weald.² In addition to these the London-Lewes secondary Roman road (see above, p. 281) passed close to the Marcsfield iron-works and for many miles the road itself was constructed of iron-slag as metalling. Another road coming south through Kent from Rochester and Maidstone entered Sussex north of Hastings and supplied the iron-works in that district. The road from Dicker by Selmeston to Newhaven may also have served as a route for exporting iron from the mouth of the River Ouse, though most of the export trade probably went from the now silted-up estuaries between Winchelsea and Tenterden in Kent.

THE END OF ROMAN SUSSEX

During the latter half of the third century the peace of more than 200 years began to be broken by the raids of Saxon pirates on our south-eastern coasts. For another 200 years these visitations were to become more and more frequent and devastating, until through the weakening of her defences by the selfish quarrels of her leaders, Roman Britain collapsed before the hordes of Saxons who poured in to settle during the last years of the fifth century. At first the Roman government acted energetically and built a series of strong forts all round our south-east coast, under the charge of an officer called the Count of the Saxon Shore. One such fort fell within the limits of Sussex, and was built below the eastern end of the Downs on a spur of sand which jutted out into the Pevensy Marshes. This was the fortress of Anderida, of which the imposing remains stand to this day at Pevensey, with more than half of its walls still over 20 feet high, supported by ten massive bastions ³ (plates XXX and

¹ *Ant. J.*, xxxii (1952), p. 73.

² *S.A.C.*, lxxxvi (1947), p. 22; I. D. Margary, *Roman Ways*, chap. 12.

³ Excavations by Mr. L. F. Salzman, *S.A.C.*, li (1908), pp. 99-114; lii (1909), pp. 83-95; *V.C.H.Sx.*, iii, pp. 5-9 (51/645048).

XXXI). These walls, which enclose an oval area of 8 acres, must be distinguished from those of the Norman castle which was built many centuries later in the eastern end of the fort. Anderida was built in the second half of the third century and was garrisoned until the end of the fourth century by the Abulci, Continental troops, who were housed in wooden hutments, and had a timber-lined well.

About the same time the walls of Chichester were strengthened by the addition of a few bastions,¹ which are a late feature of Roman military architecture. The troubles of the times are further reflected in the numbers of hoards of coins that have been found hidden away in time of danger by owners who never lived to reclaim them. Most of these date from the late third century; some belong to the fourth century.² The small villa or farm at Preston (Brighton) was burnt down, possibly by raiders, soon after A.D. 270, and never rebuilt.³ At Park Brow the farm was burnt down likewise at some period after A.D. 270.⁴ But perhaps the most interesting and significant record of these troublous times is the re-fortification of the hill-forts Cissbury, Highdown and the Caburn.

As to the precise period when Cissbury⁵ was re-fortified we have no direct evidence, except that it was after the cultivation of the interior of the site had been given up, and this cultivation is dated by pottery to the early part of the Roman period. The ramparts were heightened by building a wall of turves on top of the accumulated plough-soil which, as we have seen, had filled up the angle behind the first rampart (fig. 76, no. IV). Round the north side a small inner ditch was dug to provide soil for a similar purpose. At the two gates a length of the counterscarp bank was dug away to widen the ditch on each side of the entrance causeways, and the soil so obtained was used to increase the height of the rampart. Excavation has shown that this last must have taken place at some time subsequent to the first century A.D. In the interior there are a number

¹ *S.A.C.*, lxxv (1934), pp. 120-7.

² *V.C.H. Sx.*, iii, p. 4.

³ *B. and H.A.*, iii (1926), pp. 3-27.

⁴ *Arch.*, lxxvi (1927), pp. 8, 9.

⁵ *Ant. J.*, xi (1931), pp. 14-36.

of pits scattered about *over* the lynchets—and therefore subsequent to the cultivations—and also the visible sites of rectangular wooden hutments. There is little doubt that these are relics of the dwellings of the refugees who re-fortified the old deserted hill-fort, but so far as excavation has gone at present we have no sure criteria for dating them precisely. The only object found in any of the pits of any dating value is part of a flat rotary quern of late Roman type.

The small hill-fort on Highdown Hill, barely four miles to the south-west of Cissbury, was also re-fortified, but here there was plenty of evidence in pottery and coins to show that this took place in the late third century and probably continued into the fourth.¹ The post-holes of a rectangular hut of this period were found within the fort, and the people who took refuge here may have been the occupants of a neighbouring villa, of which the bath-house, excavated in 1937–8, fell into ruin towards the end of the third century.²

It is most likely to have been at this time that the Caburn also was re-fortified by fresh timber and chalk additions to the old ramparts which had been deserted since the Roman conquest.³ There was no evidence for dating this work except that it took place at some time intermediate between the first and the twelfth centuries; it is likely, however, that four Roman coins of the third and fourth centuries, found within the hill-fort in 1925, may have been associated with this period of re-fortification.⁴

By the last quarter of the fourth century it was beginning to be difficult for the villagers to buy the mass-produced pottery to which they had been accustomed for centuries. Accordingly we find that at Thundersbarrow Hill the natives had to turn their hands to making their own pots once again—some on the wheel, and some actually hand-made in the crudest style imaginable, with yet another recurrence of the old trick of ornamenting by rows of finger-tip impressions⁵ (fig. 92). This at once suggests an unsolved problem: we cannot point to any class of pottery as being of fifth-century date, whereas the Saxons did not begin to settle in the county till near

¹ S.A.C., lxxxi (1940), p. 197; lxxxii (1941), p. 37.

² *Ibid.*, lxxx (1939), p. 63.

³ *Ibid.*, p. 203.

⁴ *Ibid.*, lxxviii (1927), p. 9.

⁵ *Ant. J.*, xiii (1933), pp. 122, 143–50.

the end of that century. What became of the inhabitants during that dark period? It may be that they took refuge in Chichester, Cissbury and Anderida, and also in the Wealden Forests. One has only to read the lamentations of Nennius and Gildas to appreciate the stark tragedy of that time.

For what follows we must perforce trust—or else reject—the account preserved by the Saxons themselves in their Anglo-Saxon Chronicle. In the year 477, so the record goes, Aella and his three

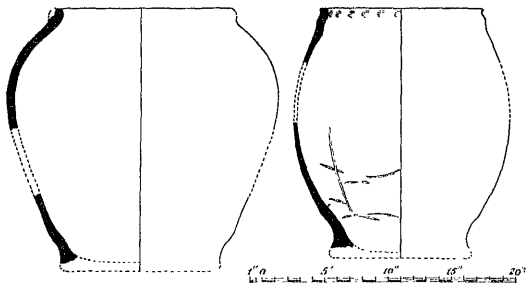


FIG. 92.—NATIVE HAND-MADE STORE-JARS, FOURTH CENTURY A.D.,
FROM THUNDERSBARROW HILL (L.M.)

sons, Cymen, Wlencing and Cissa, landed at Cymenes-ora 'and there slew many Welsh, and some they drove in flight into the wood that is named Andreds-lea'. From the evidence of later Saxon Charters¹ Cymenesora must have been a point on the coast between Selsey and Wittering, long ago washed away by the sea; it is probably represented now by the Owers bank marked a little off-shore in the Admiralty Charts;² the Welsh are, of course, the Britons; and Andredslea is the forest of the Weald, named after Anderida.³ Then again in the year 485—eight years later—'Aella fought against

¹ e.g., Birch, *Cart. Sax.*, i, 98; iii, 193.

² *P.N.Sx.*, part i, pp. 83-4.

³ *B. and H.A.*, i (1914), pp. 43-60.

the Welsh near the bank of Mear-craedsburn'. The identification of this river, which is presumably in Sussex, has eluded the efforts of scholars, and in any case one cannot help wondering what the Saxons were doing during those eight years—presumably they were settling on the coastal plain. Finally we read that in 491 'Aella and Cissa besieged Andreds-cester, and slew all that dwelt therein, so that not a single Briton was there left'. Here we have a record of the final siege of Anderida and the extermination of the Roman Britons of Sussex. How far can this account be trusted? Actually there do not seem to be any known facts to cast doubt on its accuracy as far as Sussex is concerned; our only hesitation in accepting it implicitly lies in the fact that the parallel account of the settlement of Wessex does not seem to correspond with the archaeological data. But for Sussex the evidence of place-names and of agricultural economy supports the view that the Britons, worn down by two centuries of raiding, were virtually exterminated. In all Sussex there are only two or three river-names that are of Celtic origin.¹ Neither Regnum nor Anderida have survived in the present names of those places, a fact which contrasts with the case in Kent, where at least five towns or forts have retained in some form their Celtic names, not to mention the name of the county itself; and it is in Kent that fusion rather than extermination is claimed.²

As to agricultural economy, the Saxon Conquest initiated a new agricultural system—the English open-field-system—which contrasted in nearly every point with the Celtic. Above all it was a lowland and valley system, suited to the clay lands which had not hitherto been cultivated, and it was based on valley settlements. As a consequence the old hill-villages and the Celtic fields were left derelict, and the Downs were given up once more to pasture. No remnant of defeated Britons remained to till their ancestral hills. The Saxons planted manors that have become our modern villages, but even here they did not take over the Roman villas for this purpose; thenceforth the Downs were left to solitude and the

¹ *P.N.Sx.*, part I, pp. xiii–xxv, esp. pp. xvi, xvii.

² For the Saxon settlement of Sussex see *S.A.C.*, lxxviii (1937), p. 184; lxxxii, p. 35; lxxxiii, p. 55.

tinkling sheep-bell—a paradise for the lover of nature, and for the archaeologist.¹

¹ Since 1939, however, the need for increased food-production has caused large areas of the Downs to be cleared with bulldozers and ploughed up, constituting a constant threat to our antiquities, and causing the disappearance of the shepherds and their flocks.



PLATE XXXI

Above: THE ROMAN WALLS OF ANDERIDA, BUILT LATE IN THE THIRD CENTURY

Below: THE OIVINGDEAN TREPHINED SKULL (B^YTON M.) (SEE CHAPTER XI)

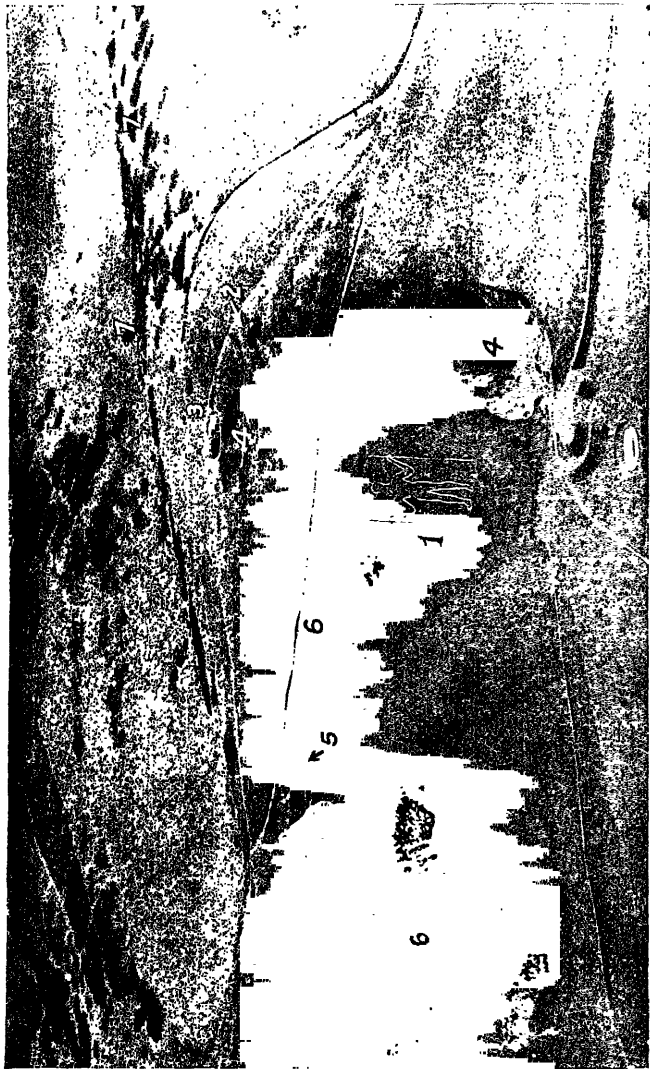


PLATE XXXII.—THE 'LONG MAN' OF WILMINGTON AND ADJACENT ANTIQUITIES, WINDOVER HILL

1. 'Long Man'; 2, Round barrow; 3, Long barrow; 4, Modern quarries; 5, Flint mines (?), 6, 6, Terraced ways, Roman period or earlier; 7, Lynchets (not seen in photo)

Chapter XI

LIMBO

Metinks amongst those many subdivisions . . . there might have been one Limbo left for these.—SIR THOMAS BROWNE, *Religio Medici*

THIS chapter is by way of being a basket into which may be shot some of those problem-pieces which cannot with any confidence be pigeon-holed in preceding chapters, on account of uncertainty of date. It is for just those items about which we have the least definite information that the 'curious reader' will inevitably inquire. As far, therefore, as space permits, a few of these problems will be briefly set out, without regard to order or classification.

THE OIVINGDEAN TREPHINED SKULL

In January 1935, shortly after a large fall of the chalk cliffs, a fisherman trawling three-quarters of a mile off Ovingdean gap, near Brighton, found part of a human skull in his net.¹ The peculiar thing about it was that two large round holes had been deliberately cut in it during life, one on either side over the brain; some healing of the edges of the bone had taken place in each hole, but there was also evidence of sepsis, and it has been concluded on surgical grounds that the individual died from sepsis about six weeks after the operation (plate XXXI). The technique employed is not that of modern surgeons, but corresponds rather to that commonly employed on the Continent in the Neolithic period, for the holes are somewhat funnel-shaped and have been made by scraping the bone away with a sharp instrument such as a flint knife or scraper. Large numbers of skulls so treated have been found in Neolithic burials in France, and it has been concluded that at that period the operation must have

¹ *Man*, 1935, 55, 56 (Dr. T. Wilson Parry and Miss M. L. Tildesley); Dr. L. A. Parry, *S.A.C.*, xc (1951-2), p. 40.

been performed as a religious rite.¹ In Britain, however, the half-dozen examples that have come to light have been either Neolithic or Beaker period, or without datable associations. From the point of view of analogies, therefore, there is a strong probability that the Ovingdean skull is Neolithic.

From the point of view of shape the skull might belong to almost any period, Neolithic or modern. The state of preservation of the bone, however, makes the unqualified acceptance of a Neolithic date difficult, for it is grey and coherent, not white and brittle like Neolithic bones that have been buried in chalk. If a Neolithic burial on the cliff had fallen into the sea with the landslide that occurred shortly before the discovery we should rather expect the skull to have been pulverized by the fall. If it had come from the submerged forest it might well have been grey in colour, but then it would also have been covered with barnacles, for the nearest portions of the submerged forest are twenty miles to the west, or thirty miles to the east, and the absence of barnacles indicates that it had not been in the sea long enough to travel so far.

Although, therefore, the question of date remains open, the skull is certainly not recent, but on the ground of analogy may be regarded as most probably Neolithic.

DUG-OUT CANOES

Seven ancient canoes, each hollowed out of a single tree-trunk, have been found in Sussex.² Five of these come from the valley of the River Arun between Pulborough and Arundel, and two from the sea-shore near Worthing and Bexhill.

One, which is now in the British Museum, was found in 1834 in a creek opening on to the Arun near North Stoke.³ This was over

¹ Dr. T. Wilson Parry, M.D., F.S.A., in *Brit. Med. Journ.*, March 17, 1923; *Med. Press*, July 8 and 15, 1914; *J.B.A.A.*, March 1916; Stuart Piggott, *P.P.S.*, vi (1940), p. 112.

² The alleged discovery of a canoe near Lewes (*Ant. J.*, vi (1926), p. 151) seems to be due to a misunderstanding of the reference there cited.

³ *Arch.*, xxvi (1835), pp. 257-64; *S.A.C.*, xii (1860), p. 260; *Ant. J.*, xxi (1941), p. 74.

34 feet long and $4\frac{1}{2}$ feet wide in the middle, tapering to about 2 feet wide at each end, and had been hollowed out of the trunk of an oak (fig. 93). Across the bottom inside three raised bars or ridges had been left at intervals; these were too low and narrow for seats, but may have served to give rigidity to the craft. Nothing was found with it to indicate its date.

Another specimen was found in 1858 in the mud of the river-flats, two miles south of the last, and one mile from Burpham Church.¹ This, which is now exhibited at Lewes Castle, is nearly 14 feet long and about 2 feet wide. It is of a more developed pattern than the last, inasmuch as it had slots for three narrow thwarts or seats, a groove for a stern-board, and a hole for the foot of a mast.



FIG. 93.—DUG-OUT CANOE, NORTH STOKE (B.M.)

It also had a unique wooden anchor with double flukes—apparently a copy of a metal prototype.

Part of a third canoe from the Arun valley, said to have been found at South Stoke, is also preserved at Lewes Castle. This fragment is 14 feet 9 inches long, and 2 feet 9 inches broad in the beam, and includes one end of the craft. There is also one internal transverse ridge similar to those in the North Stoke canoe.

Part of another specimen is recorded by the late Mr. R. Garraway Rice, F.S.A., as having been found at Pulborough in 1901, on the edge of the river-flats.² No details are available.

The fifth specimen from the Arun valley was found near Burpham in 1862, but was left in position, where it now lies.³ It is said to have been similar to the other canoe from Burpham.

¹ S.A.C., x (1858), pp. 147-50.

² P.S.A., xxiii (1911), p. 383.

³ S.A.C., lxiii (1922), pp. 3, 4. The site of this canoe will be found on the 6-inch O.S. map, sheet 50 S.W., at a point 12.15 inches from the left margin, and 0.5 inch from the lower margin.

After a severe storm in 1842 another dug-out canoe was uncovered by the sea, 200 yards off-shore, opposite Heene Lane, Worthing.¹ This, which is illustrated in the first reference given below, is said to have been 18 feet long and 3 feet wide, and to have had three transverse ridges across the inside of the bottom, like the North Stoke specimen. The two ends are shaped rather like those of a punt.

Finally we have a canoe which was seen by Mr. A. Vidler of Pevensey, some time prior to 1892.² It seems to have been situated somewhere in the Pevensey levels which were once an estuary—probably on the Bexhill side, near Cooden, but unfortunately his account gives no particulars, except that he was prevented from digging it out by its becoming covered up by a shingle bank after a storm. He records, however, that he noticed notches in the gunwale, as if for seats.

It is not possible to date any of these canoes, because in no case was any datable object found associated with them, and their shape is not sufficient to guide us in determining their age. Sir Cyril Fox, who has studied the question comprehensively,³ has worked out a scheme of classification on the basis of form, and assigns the North Stoke and South Stoke canoes to his Group III, and the Burpham specimen to his Group II. In the north of Britain similar craft have been proved by associated finds to go back to the Neolithic or Early Bronze Age, and others are believed to have remained in use as late as last century. In the south, however, it is very improbable that any specimens are more recent than the Roman period, and Sir Cyril Fox claims that the development of his Groups II and III was completed before that time. On the other hand, he does not regard our Sussex specimens as very early; perhaps the balance of probabilities favours a date in the Early Iron Age or Roman period.

Of the sixty-two specimens which he lists in England and Wales a striking feature is the marked tendency for them to fall into distinct

¹ *Arch. J.*, viii (1851), p. 113; Dixon, *Geology of Sussex*, p. 36; *Gent. Mag.*, 1843, pt. i, p. 522.

² *S.A.C.*, xxxviii (1892), p. 200.

³ *Ant. J.*, vi (1926), pp. 127-51.

local groups, of which the Arun valley forms an outstanding example. It is possible that their presence here may point to the existence of buried lake-villages in this area, but the view of the late Mr. Hadrian Allcroft that the Arun valley was even drier in Roman times than it is to-day¹ argues against the likelihood of lake-villages having existed there.

THE 'LONG MAN' OF WILMINGTON

The 'Long Man' of Wilmington is a gigantic human figure cut in the turf on the steep north face of Windover Hill, overlooking the village of Wilmington, five and a half miles north-west of Eastbourne (plate XXXII).² One of the largest representations of the human figure in the world, it gazes out, Sphinx-like, across the Weald, more enigmatic than any Sphinx of Egypt, because its secret has never been found out. In each hand this giant holds a staff or spear, and the late Sir Flinders Petrie's survey shows that their length, viz. 235 and 230 feet respectively, is practically double the distance between them, the height of the figure itself being 226 feet.³ The whole is so planned that when seen foreshortened from the ground below, its proportions are reasonable and not unduly squat, and this shows that considerable skill was employed in its design and execution.

The earliest reference to the Wilmington Giant occurs in the Burrell manuscripts of the eighteenth century, where a drawing shows the staffs converted into a scythe and rake. Of this, however, there is no trace on the ground at the present day. The outline consisted originally of a shallow trench, so that it could only be seen when the sun's rays struck it obliquely; in 1874, however, this was emphasized and perpetuated by means of white bricks which make the giant visible to all who travel from Lewes to Eastbourne. Since 1925 it has been under the care of the Sussex Archaeological Trust.

¹ A. Hadrian Allcroft, *Waters of Arun* (1930).

² 51/543035.

³ Sir Flinders Petrie, *The Hill Figures of England* (R. Anthr. Inst., 1926), pp. 7-9. The surveys are valuable, but the inferences are sometimes far from convincing.

What has just been said represents the sum of our knowledge regarding this intriguing enigma. For the rest all is guesswork, of which there has been no lack. But in every direction ingenious theories are rendered valueless by lack of evidence, and as this book is concerned only with facts and the reasonable inferences therefrom, we must not spend time on what is at best groundless guesswork.¹ It is doubtful if this problem will ever be satisfactorily settled, but in the meantime it is not safe to assume that the Giant is very ancient.

THE CHICHESTER ENTRENCHMENTS

To the north of Chichester, between the city and the Downs, lies a vast array of defensive earthworks, over twelve miles in total length, but very largely hidden in woods or shaws (fig. 94). These remarkable earthworks have been studied by the late Dr. J. P. Williams-Freeman,² but no excavations have yet been done in them to determine their date.

There are traces of three lines running east and west, and five lines running north and south, and the plan of the whole suggests that they may have been designed for the defence of the city of Chichester, together with its harbour, from an enemy approaching from the north. Of the east-to-west lines the longest and most important is the Devil's Ditch, which runs from near Ounce's Barn, Halnaker, on the east, to near West Stoke on the west—a distance of about six miles. This earthwork is perhaps most easily seen in a meadow at Lavant, two miles north of Chichester. The average height of the bank above the ditch is about 9 feet, and the weight of gravel going to make up this bank throughout the six miles of its course must be about 110,000 tons.³ At each end the ditch ter-

¹ See the correspondence in the *Sussex County Herald (Magazine)*, beginning July 21, 1923. For a brief discussion of possibilities see *Preh. Soc.*, pp. 134-6.

² *S.A.C.*, lxxv (1934), pp. 65-106.

³ The average cross-section of the bank is about 70 square feet, giving a volume of 82,000 cubic yards in six miles. One cubic yard of consolidated gravel weighs 1.35 ton.

minates abruptly for no apparent reason—probably at the points where the primeval forests closed in at the time when it was dug, but it is noticeable that it is just long enough to cover Stane Street

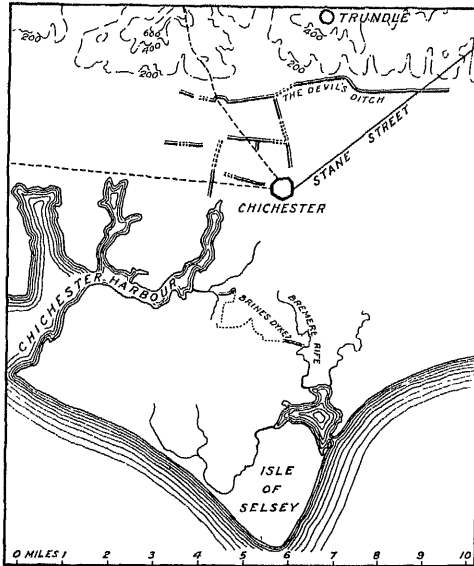


FIG. 94.—THE CHICHESTER DYKES AND THE SUPPOSED 'BRINES DYKE'

After Dr. J. P. Williams-Freeman

shown by a broken line. The
to have been somewhere off

on the north-east, and the road that came down from Bow Hill and Stoke Down on the north-west. From near the middle of the line of the Devil's Ditch a branch runs southwards towards the north-east corner of Chichester, while to the north-west of the city lie

three sides of an immense rectangle which covers both the city and the head of the harbour at Fishbourne, more than a mile to the west. Other shorter lengths of ditch can be best appreciated by studying the original description. Dr. Williams-Freeman says of the whole system: 'The defences are those of a people who were at home in forest country, and were based on the sea; settlers who had to protect themselves and their clearances from the Downland natives and their roving cattle.' In the absence of such evidence of date as might be provided by excavation one can only guess at the period when such a state of affairs might most probably have existed.

The two periods when large-scale defensive dykes are known to have been constructed elsewhere in Britain are the Belgic and Saxon periods. The frontiers of some of the Anglo-Saxon kingdoms, such as East Anglia and Mercia, were defended by long cross-country dykes like the Devil's Dyke in Cambridgeshire, and Offa's Dyke on the borders of Wales.¹ It is possible also that the Froxfield earthworks near Petersfield may, as Dr. Williams-Freeman has suggested, have had something to do with the frontier of the Saxon kingdoms of Wessex and Sussex.² But no such frontier ever existed in Saxon times to the north of Chichester. The straightness of many of the earthworks suggests Roman work, but nowhere have we any analogy for attributing such out-works to that indefatigable people.

As for the Belgae, we have a very close analogy in the Lexden dykes which defended the Belgic capital of King Cunobelin, near Colchester,³ as well as other dykes in the neighbourhood of the Belgic towns at Wheathampstead and Prae Wood, near St. Albans.⁴ If, however, we attribute a Belgic origin to the Chichester dykes we are in some difficulty because the earthworks seem to be disposed with a view to protecting Chichester rather than the hypothetical earlier Belgic capital at or near Selsey.

There is, however, reason to believe that a long dyke may have

¹ *Antiquity*, iii (1929), pp. 135-54.

² Dr. J. P. Williams-Freeman, *Field-Archaeology . . . Hampshire* (1915), p. 292.

³ *First Report on the Excavations at Colchester, 1930-4* (Reports of the Research Committee of the Soc. of Antiquaries, No. XII).

⁴ *Antiquity*, vii (1933), pp. 21-35.

once stretched across the Selsey peninsular from Chichester Harbour, north of Birdham, to the Bremere Rife which flows into Pagham Harbour, and such a line would have served admirably to defend a town in the Selsey area. The evidence for the existence of this earthwork depends on two Saxon charters in which a dyke forms the northern boundary of a tract of land which comprised most of the Selsey peninsula and afterwards became the Hundred of Manhood. In A.D. 683 this earthwork was called Brimesdik; in 957 it appears as Brynes dic,¹ and as late as 1525 it was still a recognizable landmark called Brunesydyke or Bremers-dytch.² It is clear that any surviving traces of this work should be sought along the northern bounds of the parishes of Birdham and Sidlesham,³ and the author thinks he has succeeded in tracing part of it at its eastern and western ends—sufficient to show that it faced northwards and therefore defended the peninsula from the north. This, on the analogy of the Lexden dykes, is very suggestive in supporting the theory of an earlier Belgic capital in the Selsey area. We still need, however, concrete evidence in the shape of datable pottery or other remains found in significant situations, and until we do it will be wisest to leave the Chichester Entrenchments among the unsolved problems. This does not, however, prevent us from admitting a strong leaning to the view that these earthworks may, like those at Lexden, be relics of Belgic fortification.

It is worth remarking in this connexion that the frontier dykes of the Belgae were specially devised as a defence against war-chariots which were the 'tanks' of pre-Roman warfare in Britain. Being designed to stop wheeled vehicles rather than infantry or cavalry, they were drawn continuously across open country, but not through woods at the edges of which they stopped abruptly. They were thus analogous to our anti-tank ditches.

¹ Birch, *Cart. Sax.*, i, 98; iii, 193; see *P.N.Sx.*, part i, pp. 73-4.

² E. Heron-Allen, *Selsey Bill*, p. 11.

³ In the Armada map of 1586 the 'Hundred Howse dyke in Manwed' is marked a little distance north-west of Sidlesham Church.

OTHER EARTHWORKS

We have had so much to say regarding earthworks which, as a result of excavation, have contributed very materially to the elucidation of the prehistory of Sussex, that we have no space to give more than a passing reference to those many other classes and groups of earthworks which still remain in obscurity, or regarding which there is little fresh to record since they were described in the author's *Prehistoric Sussex*.

Among the groups of earthworks are those of Bow Hill,¹ Rewell Hill,² Bexley Bushes,³ and Windover Hill;⁴ while among special classes are the cross-ridge dykes (or 'covered ways')⁵ and valley entrenchments.⁶ Those interested will find the available information in the references given below.

¹ *Preh. Sx.*, pp. 139-43; *S.A.C.*, lviii (1916), pp. 80-90.

² *Preh. Sx.*, pp. 136-9; *S.A.C.*, lxi (1920), pp. 20-39; lxix (1928), pp. 222-3.

³ *S.A.C.*, lviii (1916), pp. 65-8.

⁴ *Preh. Sx.*, pp. 131-6; *S.A.C.*, lxix (1928), pp. 92-101.

⁵ *Preh. Sx.*, pp. 113-16, 123-8; *S.A.C.*, lix (1918), pp. 35-75; *Antiquity*, i (1927), pp. 54-65; vi (1932), pp. 24-34; *Aspects of Archaeology* (Essays presented to Dr. O. G. S. Crawford, ed. W. F. Grimes, London, 1951), p. 93.

⁶ *Preh. Sx.*, pp. 144-6; *B. and H.A.*, ii (1924), pp. 57-72; iii (1926), pp. 42-61.

L'ENVOI

WHAT is the main lesson to be learnt from the picture which we have been trying to draw? Surely it is the clear appreciation of the stages of development of man's means of livelihood, and of the way in which his habitat at each stage was governed by his way of living, having regard to the natural vegetation which in turn is dependent on the geology of the district.

In the food-gathering stage, for instance, as exemplified by the Mesolithic hunters, traces of man are confined to the sparse forests and heaths covering the sand-hills. Dry habitations and happy hunting-grounds were to him the essentials of life, while grassland and the dense, damp forests of the clay were alike useless to men who possessed neither flocks nor ploughs nor efficient axes.

Next came the pastoral stage, extending from the Neolithic to the end of the Middle Bronze Age, when men lived on the produce of their flocks and herds, roving the more open country, and practising a little nomad agriculture—tilling a patch here and there for a few months, and then moving on. To such folk the comparatively bare chalk hills were a paradise, both for grazing, and because the preliminary clearance of scrub for their small-scale cultivation was easily achieved. The old hunting persisted, mainly, perhaps, as a means of obtaining deer's antlers for use as picks, as well as an additional source of food-supply. At this point industrialism first appears as a subsidiary means of livelihood, by which we mean the division of labour where one part of the community devotes itself to producing non-edible goods in return for which they are fed by the other part. At first this industrialism took the double form of flint mining and the wholesale manufacture of flint axes, and here again the chalk hills form the focus; later this gave way to the craft of the bronze-founder and the trade of the middle-man—the travelling merchant—and now the need for wood-fuel for smelting seems to have attracted the bronze-workers to the lighter forests of the Weald and the Coastal Plain.

The next stage is that of Celtic agriculture, with settled hill-farms; now the emphasis shifts from the domesticated animal to the cultivated food-plant, pastoral life takes second place and the herdsmen are for the most part no longer nomadic but farmers themselves. Industrial activity continues with differentiation of crafts; hunting is negligible. As for grazing, so for the light plough, the light soils of the chalk hills are ideal, while the value of the richer loams of the lowlands was as yet unrecognized by reason of the dense forests with which they were clothed. This stage carries us from the Late Bronze Age to the end of the Roman period, with the exception that the value of the lowlands was beginning to be recognized under the Roman villa system, which provided, in some sense, a foretaste of what follows.

The next advance carries us beyond the limits of this book, and is due to the English system of agriculture, which came in with the Saxons and has lasted in a more or less modified form until modern times. The Saxons were lowlanders and skilled woodsmen, and they possessed heavy ploughs drawn by large teams of oxen; moreover, they already knew that the superior fertility of the lowlands would compensate them for the trouble of clearing the forests. Hence we find the population leaving the chalk hills and clearing the woods—mainly the heath and scrub of the sand-hills and of the Coastal Plain, but also to some extent, and for the first time, the dense oak-woods of the clay-lands.

The latest change in the way of life has taken place during the last century, for the majority of our people no longer gain a direct living by agriculture, as they used to do; industrialism, so long subordinate to agriculture, has come to take the first place by providing man with an indirect means of livelihood. This again has caused the centres of densest population to gravitate to those areas where coal, iron and other products of nature are most easily worked.

Adam, the food-gatherer of Eden, Abel, the keeper of sheep, Cain, the tiller of the ground, and Tubal-Cain, the forger of implements of bronze and iron, have followed one another across the pages of history.

MUSEUMS EXHIBITING MATERIAL FROM SUSSEX

British Museum, London, W.C.1. Department of British and Medieval Antiquities. Contains much Sussex material of all kinds, including the following: a series of very fine Palaeolithic hand-axes and later flint implements from the Eastbourne neighbourhood; material from the Cissbury flint-mines; Bronze Age gold objects from Rustington, Bracklesham, Selsey, the River Cuckmere and Beachy Head, and fragments from the lost Mountfield treasure; several bronze hoards and individual implements; Neolithic clay spoons from Hassocks; Bronze Age cinerary urns; Iron Age pottery from Park Brow; some of the Late Bronze Age pottery from Plumpton Plain; Roman remains from various sites, notably a bronze statuette of Jupiter from West Stoke, a bronze statuette of Cupid from Falmer, a bronze figurine of a horse from Chichester, a pewter flagon from Selsey, and a gold finger-ring.

Lewes: Museum of the Sussex Archaeological Society, Barbican House. Controlled by the Museum Committee of the Council of the Society. Contains a wide and representative range of material, exclusively from Sussex, covering all periods, and as far as possible arranged in chronological sequence. These include: cast of a restoration of a range of flint implements, typologically set out and explained; Mesolithic flint implements from Selmeston and the Horsham district; the objects found in the excavation of the Neolithic ditches at the Trundle (Goodwood); a group of objects and some restored pots from the excavations in Whitehawk Neolithic Camp, Brighton; a collection illustrating the flint-mines; some bronze hoards and several individual bronze implements; Bronze Age pottery; pre-Roman pottery and other finds from Kingston Buci; the objects found in the excavation of the Iron Age hill-forts of the Caburn and the Trundle; models of the Caburn defences; a full range of restored Iron Age pots set out in chronological sequence; South-eastern B pottery from Horsted Keynes; a wall-display illustrating the methods of dating shards of broken Iron Age pottery by their characteristic features; a wide range of Roman material from the cemetery at Hassocks, the Romano-British village on Thundersbarrow Hill, the posting-stations on Stane Street at Hardham and Alfoldean, and from excavations at Pevensey (Anderida);

the objects found in the Saxon cemetery at Alfriston. In addition there are the Garraway Rice, the Eliot Curwen and the E. J. G. Piffard Collections of flint implements, and displays illustrating the development of local querns. Students desiring to study specimens are advised to make an appointment beforehand with the Curator.

Brighton: Public Library, Museum and Art Gallery, Church Street. The archaeological galleries contain: flint implements, notably Mesolithic collections from Hassocks and Peacchaven, and the objects found at Cissbury by Mr. Henry Willett and Mr. J. Park Harrison; the main collection of objects found in the excavations at Whitehawk Neolithic Camp; the Hove amber cup and associated relics; Bronze Age beakers and cinerary urns; bronze hoards and implements; Iron Age pots from Ciss

restored pots from Park Brow (Late Bronze and Iron Age and Romano-British); miscellaneous Roman remains, notably the objects found in the Hardham cemetery by Sir W. Boyd-Dawkins.

Hove: Public Museum and Art Gallery, New Church Road. The local archaeological material comprises the objects found in the excavations in the Southwick Roman Villa, the Romano-British village at West Blatchington, and a Roman site at Kingston Buci, besides a number of flint implements.

Worthing: Public Library, Museum and Art Gallery, Chapel Road. Contains: objects found in the Harrow Hill, Blackpatch and Church Hill (Findon) flint-mines; flint implements from Cissbury and elsewhere; Late Bronze Age hoards from Worthing district, the bronze cauldron from Sompington, relics from the Highdown Hill and New Barn Down excavations, and from the 1930 excavations at Cissbury; Roman remains from Chichester and district (obtained from the old Chichester Museum); Anglo-Saxon relics from cemetery on Highdown Hill.

Littlehampton: Public Library and Museum. Contains a few palaeolithic flints (local); Iron Age and Roman pottery, &c., from several local sites, notably those excavated by the Littlehampton Natural History and Archaeological Society at two peasant settlement sites in Arundel Park, viz. the 'Shepherd's Garden' and 'Nanny's Croft'; and a glass vase or alabastron from Bury.

Eastbourne: Public Library and Museum. *Destroyed by enemy action*, with loss of most of its contents, including local flint implements (notably a crescentic sickle), cinerary urns, Iron Age and Roman pottery, including some of the objects found in excavations at Pevensey (Anderida), and in a Roman villa at Eastbourne.

Hastings: Public Museum and Art Gallery, John's Place, Cambridge Road. Contains: coliths (?) from Fairlight; relics from the so-called Hastings kitchen-middens; flint implements both local and from the Downs; a few bronze implements, notably a (?) mount for a standard; a British gold coin from Hastings; coins of Carausius from the Lynchmere hoard; Saxon coins from Sussex mints.

Bexhill: The Museum, Egerton Park. Contains flint implements, local and from Sussex generally; bronze implements; material from early bloomery sites in the district.

Haslemere: Educational Museum. Contains a few local flint implements, including arrow-heads, and also some microliths from Blackdown.

Tunbridge Wells: Municipal Museum, 12 Mount Ephraim. Contains: local microliths and a few other flints from Sussex; shards of Neolithic pottery from Whitehawk Camp, Brighton; objects found in excavations at Saxonbury Camp, Frant; perforated chalk disc from Cissbury; slag from Iron Age iron-works.

Chichester: (In course of formation; temporarily housed in the Guildhall in Priory Park.) Large collection of local Roman antiquities; the objects found in the Lavant Caves.

Oxford: Ashmolcan Museum. Contains some Sussex material as follows: three palaeoliths and several other flint implements; a few bronze implements, including part of a Worthing hoard; a cinerary urn from Lancing (overhanging rim); gold and silver British coins from Brighton beach; and some Roman remains from Hardham and Lancing Down.

Oxford: Pitt Rivers Museum. Contains the objects found by General Pitt Rivers in his excavations at Cissbury.

Farnham (Dorset): Pitt Rivers Museum. Contains the objects found by General Pitt Rivers in his excavations in the Black Burgh (barrow), near Brighton, and in the Caburn.

Alnwick (Northumberland): Castle Museum (Collection of H.G. the Duke of Northumberland). Contains many objects from Sussex, listed in *S.N.Q.*, vi (1936), pp. 84-6.

LIBRARIES

The great majority of the works cited in this volume are available for reference in the Public Reference Library, Church Street, Brighton. Similar reference libraries are available in most of the other towns. The

Library of the Sussex Archaeological Society, Barbican House, Lewes, is open only to members of the Society.

MAPS

For those who wish to do detailed and original fieldwork the large-scale Ordnance Survey Maps (scale, 6 inches to the mile) are essential. The County is covered by 287 quarter-sheets, and a complete set is held by the Sussex Archaeological Society for the use of its members. Discoveries entered on these sheets may be utilized by the Ordnance Survey for future editions.

ARCHAEOLOGICAL SOCIETIES IN SUSSEX

Sussex Archaeological Society: Barbican House, Lewes. Annual subscription: £1 (entrance fee, 10s.). Membership, over 1,100. Publications, *Sussex Archaeological Collections* and *Sussex Notes and Queries*. Activities: The preservation and record of Sussex antiquities; seven excursions to places of archaeological interest during the summer; an Autumn Meeting and lecture in one of the principal towns, and the Annual Meeting in the spring at Lewes.

A committee of the Society, the *Sussex Archaeological Research Committee*, exists to plan and co-ordinate research work in the County. Those interested in excavation or other field-work are requested to communicate with the Secretary of the Committee, c/o Barbican House, Lewes.

Brighton and Hove Archaeological Society: Public Library, Church Street, Brighton. Annual subscription: 7s. 6d. Membership, about 360. Activities: the preservation and record of local antiquities; monthly lectures during the winter: monthly excursions during the summer; excavation of ancient sites as funds permit.

Worthing Archaeological Society: Public Library, Chapel Road, Worthing. Annual subscription: 7s. 6d. (entrance fee, 5s.). Membership, about 450. Activities: the promotion of the study of archaeology, and the preservation and record of local antiquities; monthly lectures during the winter; monthly excursions during the summer; excavation of ancient sites as funds permit.

Littlehampton Natural Science and Archaeology Society: Public Library and Museum, Littlehampton. Annual subscription: 5s. (entrance fee, 5s.). Membership, about 150. Archaeological activities: the preservation and record of local antiquities; lectures during the winter; excursions during the summer; excavation of ancient sites locally by members' voluntary labour.

Bexhill Museum Association: The Museum, Egerton Park, Bexhill. Minimum annual subscription: 5s. (Associates, under 18, 2s. 6d.). Membership, about 300. Activities: the support of the Bexhill Museum, and the encouragement, by lectures in the winter and excursions in the summer, of the study of Natural History, Archaeology, and kindred subjects.

Eastbourne Natural History and Archaeological Society: Towner Art Gallery. Annual subscription, 7s. 6d. (entrance fee, 2s. 6d.); Associates under 21: annual subscription, 2s. 6d. (no entrance fee). Membership, about 170. Activities: fortnightly lectures in the winter and excursions in the summer. *Transactions* issued every second year.

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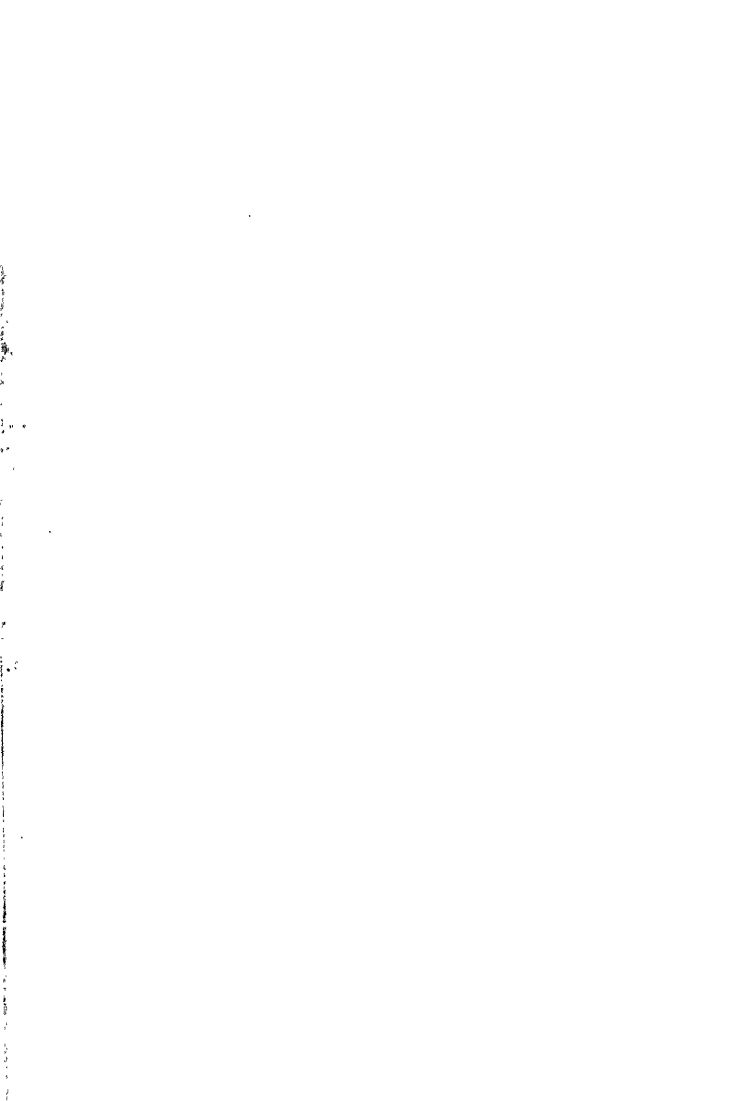
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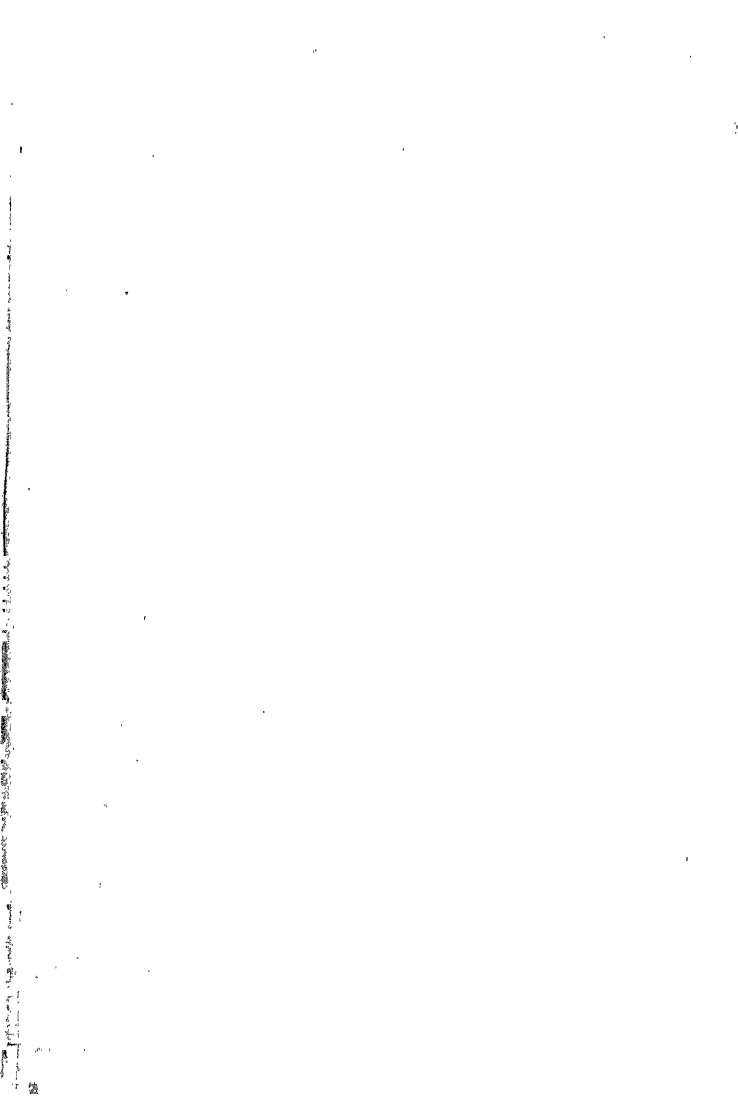
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Fig. 1. The diagram shows a curved line with several small dots along it, representing a path or trajectory.

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